SOUTH AFRICAN IRIDACEAE. THE GENUS TRITONIOPSIS.

By G. J. Lewis.

(National Botanical Gardens of South Africa, Kirstenbosch.)

(With Plate XXXIII.)

The genus *Tritoniopsis* was established by Dr. L. Bolus in 1929, with a single species, *T. leslei.* In the same paper (S. Afr. Gard. Vol. 19, p. 123) Dr. Bolus gave an account of the genus *Hebea*, sensu L. Bolus non (Pers.) Hedw. f., and made several new combinations. Writing of *Tritoniopsis*, Dr. Bolus remarked as follows: "Besides having marked protandry in common with *Hebea*, this new genus, *Tritoniopsis* (= with the appearance of *Tritonia*) also has the unguiculate (though in a less degree) perianth segments, apiculate anthers, and the angular seeds of *Hebea*, as well as the same kind of leaf, bract and capsule". The only character by which these two genera were separated was the symmetry of the flowers, the one having actinomorphic and the other zygomorphic flowers.

In 1939 Foster published a paper entitled "A Current Misinterpretation of Gladiolus subgenus Hebea Pers." (Contrib. Gray Herb., Harvard Univ., No. 127, p. 35), in which he pointed out that the group of species segregated from *Gladiolus* under the name *Hebea* by Dr. L. Bolus (and followed by myself) did not accord with the original concept of *Gladiolus* subgenus *Hebea* Pers., but was the same as Baker's concept of *Gladiolus* subgenus *Schweiggera* (E. Mey. ex Baker). Foster agreed with the South African botanists in regarding these species as generically distinct from *Gladiolus* but, as he explained, a new name was required for the genus since the name *Hebea* was not in order, nor was it possible to raise subgenus *Schweiggera* E. Mey. ex Baker to generic rank under that name as it had previously been used. He therefore provided the name *Exohebea*, with a Latin diagnosis of the genus, made a number of new combinations, and described one new species. Foster remarked also that with regard to its various characters, the genus was clearly related to the monotypic genus *Tritoniopsis*.

In the second edition of the Genera of South African Flowering Plants, published in 1951, Phillips sank *Tritoniopsis* under *Exohebea* (p. 220), and while agreeing with him in considering that these should be regarded as one genus, I can find no reason for his use of the more recent name, which should be substituted by *Tritoniopsis.* The original brief generic description requires amplification and a slight amendment to cover the majority of species in which the flowers are zygomorphic.

Another species which undoubtedly belongs in *Tritoniopsis* is one which was placed in the monotypic genus *Tanaosolen* by N. E. Brown in 1932—this genus was upheld by Phillips in the second edition of his Genera of South African Flowering Plants (p. 220). When he described this species as *Tanaosolen nudus*, N. E. Brown was not aware that it had been named *Ixia nervosa* by Baker, who placed it in *Ixia* on account of a superficial resemblance to one or two of the long-tubed species. However, the deep-seated corm, leaves, bracts, floral characters, capsules and seeds are all like those of various species of *Tritoniopsis*, and although the slender perianth tube is longer than in the majority of species, there are two in which it is as long or even longer, as well as one or two intermediate between these and the more common short-tubed species.

As I have mentioned in previous papers on the Iridaceae, the length of the perianth tube by itself is not a character to which any generic importance can be attached as both long- and short-tubed species occur in a number of genera, such as *Romulea*, *Ixia*, *Babiana*, *Gladiolus*, etc., nor is the symmetry of the flower by itself a reliable character as both actinomorphic and medianly zygomorphic flowers sometimes occur in the same genus, e.g. *Babiana*, *Lapeirousia* and even *Gladiolus*, the last a very large genus with predominantly zygomorphic flowers.

Tritoniopsis is a fairly small genus confined to the south-western districts of the Cape Province, from Clanwilliam and Ceres to the Cape and along the coastal mountain ranges eastwards as far as George. The species grow on mountain slopes and plateaux, or at the foot of mountains, and nearly all flower during the summer and autumn months.

The deep-seated corms, usually wedged among stones or rocks, can only be dug up with difficulty in most of the species, and these organs are missing from almost all of the old collections I have examined. An interesting feature about the plants is the long delay between the development of the flower spike and appearance of the flowers; by the time the flowers have opened the bract and bracteoles, which are at first herbaceous, are more or less dead and brown or reddish in colour.

ACKNOWLEDGMENTS.

Living plants of all except one species have been examined, and in addition material in collections in the following institutions:

Bolus Herbarium, University of Cape Town	BOL
South African Museum Herbarium, National Botanic Gardens, Kirstenbosch	SAM
Compton Herbarium, National Botanic Gardens, Kirstenbosch	NBG
Conservatoire et Jardin Botanique, Geneva	G
Muséum National d'Histoire Naturelle, Laboratoire de Phanérogamie, Paris	P
Royal Botanic Gardens, Kew	K
National Herbarium, Pretoria	PRE
Botaniska Museet, Uppsala	UPS
The Linnaean Society of London	LINN
Jardin Botanique de l'Etat, Bruxelles	BR
Gray Herbarium, Harvard University	GH

Thanks are due to the Directors and Curators of those institutions which provided facilities for examination of the specimens, or who kindly sent material on loan.

For advice on some problems of nomenclature I wish to express my thanks to Dr. E. Schelpe and Dr. R. A. Dyer, and for assisting me in collecting living plants I have to thank Prof. H. B. Rycroft and Miss W. F. Barker.

TRITONIOPSIS

L. Bolus, S. Afr. Gard. 19 : 123 (1929).

Gladiolus L. subgenus *Schweiggera* E. Mey. ex Baker, Journ. Linn. Soc. 16 : 178 (1877), Handbk. Irid. 199 (1892) and Fl. Cap. 6 : 138 (1896). *Gladiolus* L. section *Schweiggera* (E. Mey. ex Baker) Benth. & Hook. Gen. Pl. 3 : 710 (1883); Diels in Engl. & Prantl Pflanzenfamilien ed. 2, 15 a : 494 (1930).

Hebea L. Bolus, S. Afr. Gard. 19 ; 123 (1929).

Exohebea Foster, Contrib. Gray Herb., Harvard Univ., No. 127 : 36 (1939); Lewis in Adamson & Salter Fl. Cap. Pen. 247 (1950); Phillips Gen. S. Afr. Fl. Pl., ed. 2, 220 (1951).

Tanaosolen N. E. Br., Trans. Roy. Soc. S. Afr. 20 : 262 (1932); Phillips l. c. 220 (1951).

Corm deep-seated, ovoid or subglobose; tunics of matted moderately fine to fairly coarse fibres extending up in a long neck. *Stem* slender or robust, simple or branched. *Basal leaves* few, sometimes absent at time of flowering, petiolate, the blades erect or suberect, linear, lanceolate or ensiform (in one species more or less oblong and subacute or obtuse), usually firm and coriaceous, fairly prominently 1—7-nerved; *cauline leaves* few, the 1—3 lower short and subulate, the 1—3 upper much reduced and bract-like or minute except in one species. *Spike* lax or compact, with few or many spirally arranged flowers. *Bract* and *bracteoles* alike or nearly so, the latter completely united and as long as the bract or slightly longer, partly or entirely dry at time of flowering, coriaceous and rigid or submembranous and moderately firm, brown or reddish. *Flowers* proterandrous, in one species actinomorphic, in others zygomorphic; *perianth tube* short or long, cylindrical, not or only slightly expanded to the throat; *lobes* unguiculate, subequal or unequal. *Stamens* inserted in throat of perianth tube, well exserted, equilateral in one species, in all others unilateral; anthers dorsifixed, sagittate or linear-sagittate, apiculate. *Ovary* small; style long, with 3 short branches cuneate at the apex or sometimes retuse or very shortly bilobed. *Capsule* ellipsoid or inflated and subglobose; seeds several or many, light, angular, narrowly or fairly broadly winged on the angles.

The type species is *T. leslei* L. Bolus.

The generic name suggests a resemblance in the appearance of the type species to the genus Tritonia.

KEY TO THE SECTIONS.

1. Flowers actinomorphic, the lobes subequal or the outer slightly wider than the inner .. .. 1. *Tritoniopsis*
1. Flowers zygomorphic, the dorsal lobe slightly to distinctly longer than the 3 lower which are shortly connate in a lip 2. *Schweiggera*

Section 1. **Tritoniopsis**

Flowers actinomorphic, the perianth tube about as long as the lobes; lobes subequal or the outer slightly wider than the inner, shortly unguiculate, at first patent, later more or less ascending and forming a wide open cup. Stamens in young flowers erect and symmetrically arranged round the style.

Only species *T. leslei* L. Bolus.

1. **T. leslei** L. Bolus (Fig. 1A), S. Afr. Gard. 19 : 123 (1929).

Corm globose, about 2 cm. diam.; tunics of moderately fine reddish brown fibres with a neck 10—13 cm. long. *Stem* fairly slender, 35—65 cm. high, 1—2 mm. diam. near the base, with 1—2 short or fairly long slender erect branches. *Basal leaves* 3—5, with slender petioles, the blade linear, 13—25 cm. long, 3—5 mm. wide, 1- or 2-nerved; *cauline leaves* 3—5, the lowest arising below ground and like the basal, the 1—3 upper much reduced, brown and bract-like, acuminate, 3—1·5 cm. long. *Spike* laxly 3—10-flowered. *Bract* and *bracteoles* soft and more or less membranous near the apex, becoming fairly firm when dry, reddish to dark reddish brown, lanceolate, acuminate or acute, 1·2—1·6 cm. long, the bracteoles slightly wider and usually slightly longer than the bract. *Flowers* actinomorphic, bright red; *perianth tube* straight, slender, slightly expanded at the throat, 2—2·5 cm. long; *lobes* subequal or the outer a little wider than inner, shortly and fairly broadly unguiculate, obtuse or subacute, at first patent, later more or less ascending and forming a wide open cup, 1·8—2·8 cm. long, the outer oblong or ovate-oblong, 0·7—1·2 cm. wide, the inner oblong or oblong-lanceolate, 7—9 mm. wide. *Stamens* in young flowers erect and symmetrically arranged round the style; filaments 1·6—1·9 cm. long; anthers linear-sagittate, 6—7 mm. long, the apiculus 0·5—1 mm. long. *Ovary* rotund, 2—3 mm. long; style erect, 3—3·5 cm. long, the branches slender, 3—4 mm. long, cuneate at the apex or occasionally retuse or shortly bilobed. *Capsule* ellipsoid, greenish or green and red, 1·2—1·8 cm. long, 0·7—1 cm. diam.; seeds about 5 mm. long, narrowly winged.

Local in marshy ground near streams on lower mountain slopes near Ceres.

TYPE. *Leslie*, N.B.G. 417/27, in the Bolus Herbarium.

Flowering period. February—April.

CERES. Ceres, *Leslie*, N.B.G. 417/27, 246/31 (BOL); marshy ground near stream on lower slopes of Skurweberg, about 5 miles N. of Ceres, *Lewis* 5372 (NBG).

Section 2. **Schweiggera** (E. Mey. ex Baker) Lewis comb. nov.

Gladiolus L. subgenus *Schweiggera* E. Mey. ex Baker, Journ. Linn. Soc. 16 : 178 (1877), Handbk. Irid. 199 (1892) and Fl. Cap. 6 : 138 (1896); *pro sect.* Benth. & Hook. Gen. Pl. 3 : 710 (1883); Diels in Engl. & Prantl Pflanzenfamilien ed. 2, 15 a : 494 (1930).

Flowers zygomorphic, the 3 upper lobes free and 3 lower shortly connate in a lip, sometimes the 2 upper lateral shortly connate with the 3 lower; perianth tube short or long; lobes recurving as the flowers mature, with short or long claws, the dorsal slightly to distinctly longer than the others, at first more or less arcuate, later usually ascending or erect. Stamens unilateral, nearly always arcuate or subarcuate.

The type species is *T. parviflora* (Jacq.) Lewis.

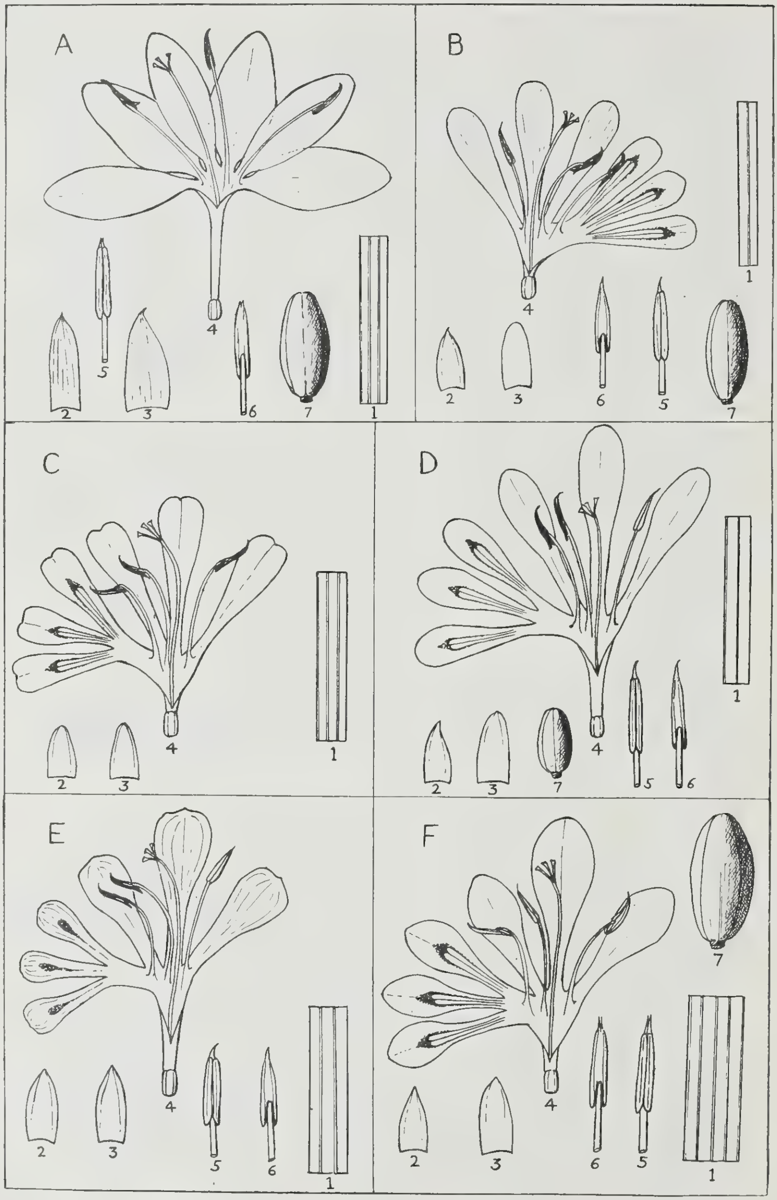

FIG. 1.—A. *T. leslei.* B. *T. ramosa.* C. *T. ramosa*, form. D. *T. ramosa* var. *unguiculata.* E. *T. pulchella.* F. *T. lata.*
1. Part of leaf. 2. Bract. 3. Bracteoles. 4. Flower laid open. 5. Anther and part of filament, front view, × 2. 6. Same, back view, × 2. 7. Capsule.
Del. G. J. Lewis.

KEY TO THE SPECIES.

- 1. Perianth tube 3 cm. or more long, longer than the lobes.
  - 2. Bracts not more than 1 cm. long; dorsal perianth lobe less than 1·5 cm. long .. .. 12. *nervosa*
  - *2.* Bracts 2 cm. or more long; dorsal perianth lobe more than 2 cm. long.
    - 3. Basal leaves oblong or oblong-lanceolate, acute or obtuse, not more than 6 cm. long; upper and lower cauline leaves alike, 4—7 cm. long, the lower part amplexicaul and the upper firmly involute, appearing terete .. .. 13. *flexuosa*
    - *3.* Basal leaves lanceolate or ensiform, acuminate, more than 10 cm. long; upper cauline leaves very much reduced, short and bract-like .. .. 14. *apiculata*
- *1.* Perianth tube usually less than 2 cm. long and shorter than the lobes, occasionally 2—2·8 cm. long and about as long as the dorsal lobe.
  - 4. Bracts 1·5—2 cm. long; perianth tube 2—2·8 cm. long, about as long as the dorsal lobe.. .. .. .. 14. *apiculata* var. *minor*
  - *4.* Bracts usually less than 1·2 cm. long but occasionally up to 1·6 cm.; perianth tube up to 2 cm. long but usually less, slightly or much shorter than the lobes.
    - 5. Stem branched.
      - 6. Basal leaves lanceolate to ensiform, 0·8—2·5 cm. wide, 4—7-nerved, with fairly wide conduplicate petioles.
        - 7. Stem 1 metre or more high; flowers yellow 6. *nemorosa*
        - *7.* Stem less than half a metre high; flowers pink .. .. 4. *latifolia*
      - *6.* Basal leaves linear to lanceolate, usually 2—8 mm. wide but occasionally up to 1·2 cm., 1—3-nerved (rarely 4), with slender petioles.
        - 8. Perianth lobes more or less truncate, the 3 upper distinctly wider than the 3 lower .. 3. *pulchella*
        - *8.* Perianth lobes obtuse or occasionally emarginate, the upper lateral and 3 lower equal in width and the dorsal not or only slightly wider .. .. 2. *ramosa* vars.
    - *5.* Stem simple.
      - 9. Flowers small, 1·2—2·5 cm. long, rarely slightly more but if so then the lobes very narrow and the dorsal with a long claw at least twice as long as the blade; perianth tube 3—5 mm. long.
        - 10. Flowers 1·2—1·5 cm. long (rarely up to 1·8 cm.), pale yellow or cream-coloured, often with mauve or purplish marks on the lower half of the 3 lower lobes.
          - 11. Leaves linear, 1—2 mm. wide, 1-nerved; 3 lower perianth lobes cuneate-oblong with very short claws; filaments 3—5 mm. long .. .. 11. *caledonensis*
          - *11.* Leaves linear or linear-lanceolate, 2—7 mm. wide, 2—3-nerved or occasionally with only 1 nerve; 3 lower perianth lobes spathulate or oblong-spathulate with claws nearly as long as the blades; filaments 6—7 mm. long .. .. 10. *unguicularis*
        - *10.* Flowers 1·8—2·5 cm. long.
          - 12. Perianth lobes very narrow, 2—3 mm. wide or the dorsal occasionally up to 4 mm., the claw of the dorsal at least twice as long as the blade .. .. 7. *parviflora* var. *angusta*

12. Perianth lobes 3 mm. or more wide, the claw of the dorsal less than twice as long as the blade.
  13. Leaves 2- or 3-nerved; flowers pink 9. *dodii*
  13. Leaves nearly always 1-nerved; flowers bicoloured, the 3 upper lobes yellow and the tube and lower lobes dark maroon, purplish or purplish red usually with brownish or yellow tips .. .. 7. *parviflora*

9. Flowers 2·5 cm. or more long, the perianth tube 0·6—2 cm. long.
 14. Perianth lobes more or less truncate; 3 upper lobes nearly equal in width and distinctly wider than the 3 lower .. .. 3. *pulchella*
 14. Perianth lobes not as above; upper lateral lobes and 3 lower more or less equal in width.
  15. Dorsal perianth lobe usually 7 mm. or more wide, at least 5 mm. longer than the upper lateral lobes and 2 mm. or more wider than the 3 lower .. 5. *lata*
  15. Dorsal perianth lobe rarely more than 6 mm. wide, seldom up to 5 mm. longer than the upper lateral lobes, as wide as the 3 lower or up to 1 mm. wider.
   16. Spike very long and many-flowered, slightly or much longer than the non-flowering part of rachis; bracts and bracteoles conspicuously apiculate .. .. 8. *elongata*
   16. Spike not as above; bracts and bracteoles not apiculate or sometimes very shortly and inconspicuously so.
    17. Stem usually fairly stout and 2 mm. or more in diam. near the base; bracts obtuse or subacute, firm and coriaceous, rigid when dry; capsule inflated, ovoid or subglobose, about 2·5 cm. long .. .. 9. *dodii*
    17. Stem usually slender and less than 1·5 mm. in diam. near the base; bracts acute, somewhat membranous and soft, sometimes moderately firm but not rigid when dry; capsule ellipsoid, not inflated, up to 1·5 cm. long .. .. 2. *ramosa* vars.

2. **T. ramosa** (Eckl. ex Klatt) Lewis comb. nov.

Antholyza ramosa Eckl. ex Klatt, Linnaea 32 : 734 (1863); Dur. & Schinz Consp. Fl. Afr. 5 : 230 (1895). *Hebea ramosa* Eckl. Top. Verz. 43 (1827), *nomen nudum*; L. Bolus, S. Afr. Gard. 19 : 123 (1929). *Gladiolus montanus* L. f. var. *ramosus* (Klatt) Baker, Journ. Linn. Soc. 16 : 178 (1877) and Fl. Cap. 6 : 164 (1896). *G. ramosus* (Klatt) N. E. Br., Journ. Linn. Soc. 48 : 27 (1928); non L. (1762). *Exohebea ramosa* (Klatt) Foster, ontrib. Gray Herb. Harvard Univ., No. 127 : 39 (1939).

KEY TO THE VARIETIES.

1. Perianth tube up to 1 cm. long but usually less .. .. var. *ramosa*
1. Perianth tube 1·2—2 cm. long.
  2. Leaves up to 5 mm. wide, 1-nerved or occasionally with 2 nerves .. .. var. *unguiculata*
  2. Leaves 0·5—1·2 cm. wide, 2—3-nerved or very occasionally with 4 nerves .. .. var. *robusta*

Var. **ramosa** (Fig. 1 B—C).

Corm ovoid or subglobose, 1·8—3 cm. diam.; tunics dark brown or reddish brown, usually fairly coarse and matted with a thick rope-like neck 8—15 cm. long, sometimes of finer fibres and with a thinner neck. *Stem* slender or fairly slender, 12—50 cm. high, 1—2 mm. diam. near the base, straight or slightly flexuose, nearly always branched, the 1—4 branches slender, sometimes filiform, varying from very short to half as long as the stem and erect to suberect. *Basal leaves* 3—6, sometimes absent or only 1 present at time of flowering, the petioles slender and blades linear to linear-lanceolate, acuminate, 10—25 cm. long, 2—5 mm. wide, 1- or 2-nerved; *cauline leaves* 3—5, usually brown or reddish brown, 4·5—0·5 cm. long, the lower 1—3 subulate and the upper 1 or 2 much reduced and bract-like. *Spike* 5—18 cm. long, laxly 4—18-flowered; lateral spikes shorter, 1—7-flowered. *Bract* and *bracteoles* green at the base, reddish or reddish brown above, soft and more or less membranous, moderately firm when dried, oblong or ovate, 0·5—1 cm. long, acute or obtuse, sometimes very shortly apiculate, sometimes the bract acute and bracteoles obtuse, the latter as long as the bract or 1—2 mm. longer. *Flowers* zygomorphic, faintly sweet-scented, pale pink, mauve-pink or deep magenta-pink, the 3 lower lobes with a crimson or purplish medial line between 2 white lines extending down the claw from near the middle of the blade; *perianth tube* straight or slightly curved, very slightly widened to the throat, 0·7—1 cm. long; *lobes* oblanceolate or oblong-spathulate and obtuse, occasionally cuneate-spathulate and emarginate, the dorsal 2·1—2·8 cm. long, 5—6 mm. wide, the others sub-equal, 2—2·5 cm. long, 4—5 mm. wide, the 3 lower connate for 5—7 mm. *Stamens* arcuate; filaments 1·5—1·8 cm. long; anthers linear-sagittate, 5—7 mm. long, the apiculus acute, recurved, 1—1·5 mm. long. *Ovary* ovoid or oblong, 2·5—3 mm. long; style 2·4—2·8 cm. long, the branches terete, 3—4 mm. long, slightly expanded and cuneate at the apex or occasionally retuse or shortly bilobed. *Capsule* greenish or pallid, ellipsoid, 1·2—1·5 cm. long; seeds 3—4 mm. long, very narrowly winged.

Widespread in hard dry ground or sandy, rocky or marshy slopes on hills and mountains in the south-western districts from Clanwilliam to Swellendam, at altitudes from 700 to 5,000 ft.

LECTOTYPE. *Ecklon* and *Zeyher* 70 in the Herb. Delessert, Geneva.

Flowering period. January—April, occasionally also at other times.

CLANWILLIAM. Sneeuwberg, S. Cedarberg, 5,000 ft., *Esterhuysen* 13822 (BOL): Elands Kloof, near summit, *Smuts* and *Gillett* 3464 (BOL).

PIKETBERG. Mountain above Porterville, along streams, *Loubser* 920 (NBG).

TULBAGH. Twenty-four Rivers Mts., *Zeyher* 3996 (P, SAM); Great Winterhoek Mt., 3,000—3,500 ft., *Galpin* 12580 (PRE): *Compton* 4639 (BOL, NBG); Sneeuwgat, Great Winterhoek, *Phillips* 1869 (SAM); Waboomsrivier, Wolseley, *Stokoe* (No. 58373 in SAM).

CERES. Hexberg, Elands Kloof, *Johnson* 32 (NBG); Elands Kloof, *Barker* 7270 (BOL, NBG); Cold Bokkeveld Mts., Elands Kloof, 3,500—4,000 ft., *Esterhuysen* 18432 (BOL, PRE): Schoongezicht, Cold Bokkeveld Mts., *Stokoe* (No. 65598 in SAM): *Esterhuysen* 21302 (BOL): Skurfdebergen, E. of Citrusdal, *Primos* (SAM): Skurfdeberg, behind Porterville, 3,500 ft., *Edwards* 88 (BOL): Agter Witsenberg, *Lewis* 5360 (NBG): lower mountain slopes near top of Gydo Pass, *Lewis* 5365 (NBG): Skurweberg, about 5 miles N. of Ceres, *Lewis* 5369 (NBG): Michells Pass, *Bond* 334 (NBG); *Lewis* 5359 (NBG).

WORCESTER. Du Toits Kloof, *Drege* 1580 a (G, P, SAM): *Marloth* 632 (PRE); Hex River Valley, near De Doorns, *Bolus* (No. 26640 in BOL); Worcester, *Cooper* 3314 (K): Boschjesveld Mts., near Villiersdorp, *Zinn* (No. 54416 in SAM).

PAARL. French Hoek, foot of mountain, *Smith* 2655 (PRE); Wemmershoek, *Esterhuysen* 18591 (BOL, PRE): Klein Drakenstein Mts., near Salem, *Galpin* (No. 26631 in BOL); Groot Drakenstein, *Rogers* 10504 (BOL); Klapmuts, hill slopes, *Lewis* 5356 (NBG).

STELLENBOSCH. Upper slopes of Stellenbosch Mt., *Galpin* 10605 (PRE); Jonkershoek Valley, *Rycroft* 2149 (NBG).

SOMERSET WEST. Foot of Sir Lowrys Pass, *Stokoe* (No. 65595 in SAM).

CALEDON. Elgin, *Smith* 2536 (PRE); Palmiet River Valley, near Elgin, *Stokoe* (No. 55608 in SAM); Palmiet River, 4 miles W. of Highlands, *Rycroft* 2151 (NBG); Palmiet River Mts., *Stokoe* (No. 59834 in SAM); Sir Lowrys Pass, *Compton* 20466 (NBG); Houwhoek, *Schlechter* 7353 (K, PRE); Viljoens Pass, *Salter* 2998 (BOL, K); *T. Barnard* (No. 26632 in BOL); Boschveld between Donkerhoek and Houwhoek Mts., *Burchell* 8012 (K); between Genadendal and Villiersdorp, *Gillett* 904 (BOL, K): hills near Caledon Baths, *Purcell* 78, 79 (SAM): mountains near Caledon and Genadendal, *Ecklon* and *Zeyher* 70 (G).

ROBERTSON. Klaasvoogds, S. slopes of Langeberg, *Esterhuysen* 22709 (BOL).

SWELLENDAM. Tradouw Pass, *Pole Evans* (No. 26628 in BOL); Swellendam, *Thode* A 2396 (PRE).

WITHOUT LOCALITY. *Bolus* 4069 B (BOL, PRE).

Under the description of *Antholyza ramosa* Klatt cited several collections in the Herb. Reg. Berol. (Berlin-Dahlem Herbarium), but did not designate any particular one as the type. As far as is known they were all destroyed during the last war but isotypes of two or three exist in several herbaria and one of these, *Ecklon* and *Zeyher* 70 in the Delessert Herbarium, has been chosen as the lectotype.

Klatt gave as a synonym *Hebea ramosa* Eckl., which is a *nomen nudum* as there is no description of the plant by Ecklon, but a number of specimens bearing this name were distributed to various herbaria. An examination of some of these has shown that another species, *T. lata*, was confused with it and in the collections in some herbaria specimens of one or the other species under the same name and number have been seen. The differences between the two species are discussed under *T. lata*.

Like most widespread species, *T. ramosa* is very variable. The variety *ramosa* covers a large area and many local forms have been observed, some of which are evidently effected by differences in soil and habitat. For example, plants in marshy ground or near streams on mountain slopes are generally tall, with slender stems and filiform more or less erect branches, whereas those growing in hard dry ground, often in clay or gravel soil, have much coarser corm tunics, shorter and stouter stems and comparatively longer, less slender and more spreading branches.

Var. **unguiculata** (Baker) Lewis comb. nov. (Fig. 1 D).

Tritonia unguiculata Baker Handbk. Irid. 196 (1892) and Fl. Cap. 6 : 128 (1896). *Gladiolus unguiculatus* (Baker) N. E. Br., Journ. Linn. Soc. 48 : 27 (1928); non Baker (1877). *Hebea unguiculata* (Baker) L. Bolus, S. Afr. Gard. 19 : 123 (1929). *Exohebea unguiculata* (Baker) Foster, Contrib. Gray Herb., Harvard Univ., No. 127 : 39 (1939).

Differs from var. *ramosa* in having slightly smaller corms with fewer and softer tunics and the neck somewhat sparsely fibrous, the branches almost always erect or ascending, the perinth tube longer and capsules and seeds slightly smaller.

Corm ovoid or subglobose, 1·5—2·5 cm. diam.; tunics of fairly fine dark brown or reddish brown fibres, the neck thin, 5—10 cm. long. *Stem* 18—35 cm. high, 1—2 mm. diam. near the base, usually with 1—4 short or fairly long erect or ascending branches. *Basal leaves* 3—4, linear or linear-lanceolate, 10—20 cm. long (usually 10—15 cm.), 2·5—5 mm. wide, 1-nerved or occasionally with 2 nerves. *Spike* 5—12 cm. long, laxly 3—8-flowered. *Bract* and *bracteoles* 0·7—1·2 cm. long, as in var.

ramosa. *Flowers* as in var. *ramosa* but the perianth tube 1·3—2 cm. long. *Capsule* 0·9—1·2 cm. long; seeds 2—3 mm. long, very shortly winged.

Sandy and stony ground on lower mountain slopes from the Caledon to George Divisions.

TYPE. *Kitching*, in Kew Herbarium.

Flowering period. January—March.

CALEDON. Happy Valley, *Barker* 1546 (NBG); Riviersonderend Mts., *Lewis* 2281 (SAM); *Esterhuysen* 25330 (BOL).

SWELLENDAM. Swellendam Mt., *Compton* 10587 (NBG); *Esterhuysen* 4827 (BOL).

HEIDELBERG. Grootvadersbosch, *Esterhuysen* 18248 (BOL).

RIVERSDALE. Garcias Pass, 1,400 ft., *Muir* 3151 (BOL); *Ferguson*, N.B.G. 434/29 (BOL); *Lewis* 5381 (NBG).

MOSSEL BAY. Robinson Pass, *Thorne* (No. 50136 in SAM); *Hops* 18 (BOL).

GEORGE. Postberg, near George, *Burchell* 5949 (K); Cradockberg, 1,500 ft., *Compton* 14386 (NBG).

WITHOUT LOCALITY. *Kitching* (K).

This was previously treated as a separate species, closely allied to *T. ramosa*, but after examining a large amount of material it was found that most of the distinguishing characters listed by N. E. Brown are variable, such as the size of the corm, the length of the internode below the first flower on the branches, and the length of the perianth tube and size of the flowers. In my opinion, the slight and somewhat variable differences do not warrant more than varietal status.

Var. **robusta** Lewis var. nov.

A var. *ramosa* foliis latioribus et perianthii tubo leviter longiore, et a var. *unguiculata* cormo majore, foliis latioribus, bracteis bracteolisque leviter longioribus et capsulis majoribus, distinguitur.

Cormus 2·5—5 cm. diam., tunicis crassis e fibris sat robustis fusce rubido-brunneis in collo 7—14 cm. longo productis, compositis. *Caulis* plerumque 40—50 cm. altus ramis 1—3 gracilibus erectis vel adscendentibus. *Folia basalia* 2—3, plerumque post anthesin evoluta, lanceolata vel ensiformia, 15—28 cm. longa, 0·5—1·2 cm. lata, 2—3-nervata vel raro 4-nervata. *Spica* var. *ramosae* similis. *Bractea* et *bracteolae* lanceolatae, acutae, interdum breviter apiculatae, 0·9—1·5 cm. longae. *Flores* var. *ramosae* similes sed perianthii tubo 1·2—1·5 cm. longo. *Capsula* 1·2—1·8 cm. longa; semina 3—4 mm. longa.

Distinguished from var. *ramosa* by its wider leaves and slightly longer perianth tube and from var. *unguiculata* by its larger corm, wider leaves, slightly longer bracts and bracteoles and larger capsules.

Corm 2·5—5 cm. diam.; tunics thick, of fairly coarse dark reddish brown fibres, the neck 7—14 cm. long. *Stem* usually 40—50 cm. high, with 1—3 slender erect or ascending branches. *Basal leaves* 2—3, usually developed after the flowers, lanceolate or ensiform, 15—30 cm. long, 0·5—1·2 cm. wide, 2—3-nerved or rarely 4—nerved. *Spike* as in var. *ramosa*. *Bract* and *bracteoles* lanceolate, acute, sometimes shortly apiculate, 0·9—1·5 cm. long. *Flowers* as in var. *ramosa* but the perianth tube 1·2—1·5 cm. long. *Capsule* 1·2—1·8 cm. long; seeds 3—4 mm. long.

Sandy and stony ground on lower slopes of the Langeberg in the Swellendam and Heidelberg Divisions.

TYPE. *Lewis* 5447 in the Compton Herbarium, National Botanic Gardens, Kirstenbosch.

Flowering period. January—March.

SWELLENDAM. Ten O'clock Mt., 2,500 ft., *Wurts* 555 (NBG).

HEIDELBERG. Lower southern slopes of Lemoenshoek Peak, *Esterhuysen* 14457 (BOL); Grootvadersbosch, lower slopes of the mountains, *Lewis* 5447 (NBG).

This variety is more robust than the others, especially var. *unguiculata*, with a larger corm and wider leaves. The flowers of all three varieties are very similar, the only difference being in the length of the perianth tube which in var. *robusta* is more or less intermediate between the other two.

3. **T. pulchella** Lewis sp. nov. (Fig. 1 E).

Cormus subglobosus, 1·5—3·5 cm. diam., tunicis e fibris sat robustis rubido-brunneis in collo 6—8 cm. longo productis, compositis. *Caulis* rigidus, rectus vel flexuosus, 20—45 cm. altus, basin versus 2—3 mm. diam., ramis 1—4 brevibus suberectis. *Folia basalia* 5—7, petiolis tenuibus; lamina lanceolata vel lineari-lanceolata, acuminata, 10—18 cm. longa, 3—8 mm. lata, 1—2-nervata (raro 3); *folia caulina* 3—5, 1 vel 2 inferiora basalibus similia sed breviora, 1 vel 2 superiora plerumque brunnea et bracteis similia, 0·5—2·5 cm. longa. *Spica* 5—12 cm. longa, aliquid laxe 8—16-flora. *Bractea* et *bracteolae* brunneae vel rubido-brunneae, firmae, oblongae, acutae vel subacutae, saepe apiculatae, 0·8—1·2 cm. longae, bracteolae quam bracteae leviter longiores. *Flores* irregulares, rosei, laminis segmentorum 3 inferiorum medium versus clare rubri-notatis; *perianthii tubus* rectus, 1·5 cm. longus; *segmenta* cuneato-spathulata, truncata vel subtruncata, dorsale 2·3—2·5 cm. longum, 7—8 mm. latum et lateralia superiora 1·6—2 cm. longa, 6—7 mm. lata; segmenta 3 inferiora aequalia, 1·6—2 cm. longa, 4—5 mm. lata, per 5—7 mm. coalita. *Stamina* arcuata, filamentis 1·7—2·5 cm. longis et antheris lineari-sagittatis 6—7 mm. longis apiculo acuminato obscure bipartito plus minusve recurvato, 1·5—2 mm. longo, indutis. *Ovarium* oblongo-ovoideum, 3—4 mm. longum; stylus 2·7—3·3 cm. longus, ramis tenuibus apice cuneatis, interdum emarginatis vel breviter bilobatis. *Capsula* et semina non visa.

Corm subglobose, 1·5—3·5 cm. diam.; tunics of fairly coarse reddish brown fibres, the neck 6—8 cm. long. *Stem* rigid, straight or flexuose, 20—45 cm. high, 2—3 mm. diam. near the base, with 1—4 short suberect branches. *Basal leaves* 5—7, with slender petioles, the blade lanceolate or linear-lanceolate, acuminate, 10—18 cm. long, 3—8 mm. wide, 1—2-nerved (rarely 3); *cauline leaves* 3—5, the lower 1 or 2 like the basal but shorter, the upper 1 or 2 usually brown and bract-like, 0·5—2·5 cm. long. *Spike* 5—12 cm. long, somewhat laxly 8—16-flowered. *Bract* and *bracteoles* brown or reddish brown, firm, oblong, acute or subacute, often apiculate, 0·8—1·2 cm. long, the bracteoles slightly longer than bracts. *Flowers* zygomorphic, bright rose-pink, the 3 lower lobes with a bright red mark near the middle of the blade, extending in a medial line down the claw; *perianth tube* straight, 1·5 cm. long; *lobes* cuneate-spathulate, truncate or subtruncate, the dorsal 2·3—2·5 cm. long, 7—8 mm. wide, and upper lateral 1·6—2 cm. long, 6—7 mm. wide; 3 lower lobes alike, 1·6—2 cm. long, 4—5 mm. wide, connate for 5—7 mm. *Stamens* arcuate; filaments 1·7—2·5 cm. long; anthers linear-sagittate, 6—7 mm. long, the apiculus 1·5—2 mm. long, more or less recurved, acuminate, obscurely bipartite. *Ovary* oblong-ovoid, 3—4 mm. long; style 2·7—3·3 cm. long, the branches slender, 4—5 mm. long, cuneate at the apex, sometimes emarginate or shortly bilobed. *Capsule* and seeds not seen.

Stony and sandy soil on mountains, from 1,800 to 3,800 ft.

TYPE. *Compton* 16929 in the Compton Herbarium, National Botanic Gardens, Kirstenbosch.

Flowering period. December—February.

WORCESTER. Bains Kloof, 2,000 ft., *Compton* 16929 (NBG); Baviaans Kloof, off Bains Kloof, 3,000 ft., *Gillett* 803 (K); *Lewis* 5354 (SAM); Du Toits Kloof, *Stokoe* (No. 65599 in SAM); Slanghoek Mts., Observation Peak, 3,500 ft., *Esterhuysen* 8629 (BOL).

WELLINGTON. Witte River Valley, *Esterhuysen* 8684 (BOL).

STELLENBOSCH. Dwarsberg, Jonkershoek, 3,800 ft., *Rycroft* 1256 (SAM); Hottentots Holland Mts., N. of Somerset Sneeuwkop, *Esterhuysen* 9721 (BOL).

CALEDON. South side of Steenbras Dam, on lower slopes below Kogelberg, *Lewis* 4180 (SAM); near Genadendal, 3,500 ft., *Bolus* 7426 (BOL).

In smaller plants there are usually 3—4 leaves and the stem is sometimes not more than 10—15 cm. high and occasionally simple. The species appears to be near *T. lata* and *T. ramosa* but differs from the former in having the stem usually shorter and nearly always branched, the perianth tube longer and the lobes differently shaped, widest almost at the apex, with the two upper lateral lobes almost as wide as the dorsal and distinctly wider than the 3 lower. From *T. ramosa* it differs in its generally more robust habit, the colouring and markings of the flowers and the shape of the perianth lobes. As no fruits of *T. pulchella* have been seen it has not been possible to compare these organs.

Var. **alpina** Lewis var. nov.

A var. *pulchella* caule longiore, ad 65 cm. longo, plerumque simplici, bracteis leviter brevioribus, obtusis, 6—8 mm. longis, et perianthii tubo 1 cm. longo, distinguitur.

Differs from var. *pulchella* in having a longer stem, up to 65 cm. long, usually simple, the bracts slightly shorter and obtuse, 6—8 mm. long, and the perianth tube only 1 cm. long.

TYPE. *Esterhuysen* 13758 in the Bolus Herbarium.

TULBAGH. Among rocks, S. slopes of Little Winterhoek, 6,000 ft., *Esterhuysen* 13758 (BOL).

The altitude is the highest recorded for the genus. This variety, with its taller, usually simple stem, and shorter perianth tube, closely resembles *T. lata* from which it is distinguished mainly by the shape of the perianth lobes.

4. **T. latifolia** Lewis sp. nov.

Cormus subglobosus, circa 4 cm. diam., tunicis e fibris robustis rubidobrunneis in collo compacto rigido cylindrico 12—20 cm. longo productis, compositis. *Caulis* rigidus, rectus vel leviter flexuosus, 12—35 cm. altus, basin versus 1·5—4 mm. diam., plerumque ramis 1—2 brevibus erectis. *Folia basalia* 4—5, disticha, rigida, petiolis sat latis conduplicatis; lamina ensiformia vel lanceolata, acuminata, 8—25 cm. longa (interdum ad 40 cm.), 0·8—2 cm. lata, 4—6-nervata; *folia caulina* 2—4, interdum infimum basalibus simile, cetera linearia, 6—2 cm. longa, 1 vel 2 superiora plerumque brunnea. *Spica* 7—12 cm. longa, laxe 6—12-flora, interdum ad 30 cm. longa et 27-flora. *Bractea* et *bracteolae* rigidae, fusce rubidobrunneae, oblongae, acutae, breviter apiculatae, 0·9—1·2 cm. longae, bracteolae quam bracteae leviter longiores. *Flores* irregulares, rosei, laminis segmentorum 3 inferiorum linea media purpurea notatis; *perianthii tubus* rectus, 0·8—1 cm. longus; *segmenta* spathulata vel oblanceolata, 3—5 mm. lata, obtusa vel interdum plus minusve emarginata, dorsale

2—2·5 cm. longum, cetera subaequalia, 1·7—2 cm. longa, 3 inferiora per 2—5 mm. coalita. *Stamina* arcuata vel suberecta, filamentis 1·2—1·4 cm. longis et antheris lineari-sagittatis 5—5·5 mm. longis, apiculo parvo circa 0·5 mm. longo indutis. *Ovarium* oblongum, 3 mm. longum; stylus 2—2·2 cm. longus ramis tenuibus 2—2·5 mm. longis apice cuneatis. *Capsula* et semina non visa.

Corm subglobose, about 4 cm. diam.; tunics of coarse reddish brown fibres, with a hard compact cylindrical neck 12—20 cm. long. *Stem* rigid, straight or slightly flexuose, 12—35 cm. high, 1·5—4 mm. diam. near the base, usually with 1 or 2 short erect branches, the branches with a very short internode below the first flower. *Basal leaves* 4—5, distichous, rigid, with fairly wide conduplicate petioles, the blade ensiform or lanceolate, acuminate, 8—25 cm. long (occasionally to 40 cm.), 0·8—2 cm. wide, 4—6-nerved; *cauline leaves* 2—4, the lowest sometimes like the basal, the others linear, 6—2 cm. long, the 1 or 2 upper usually brown. *Spike* 7—12 cm. long, laxly 6—12-flowered, sometimes up to 30 cm. long and 27-flowered. *Bract* and *bracteoles* rigid, dark reddish brown, oblong, acute, shortly apiculate, 0·9—1·2 cm. long, the bracteoles slightly longer than bracts. *Flowers* zygomorphic, pink with a dark purplish red medial line on the blades of the 3 lower lobes; *perianth tube* straight, 0·8—1 cm. long; *lobes* spathulate or oblanceolate, 3—5 mm. wide, obtuse or sometimes more or less emarginate, the dorsal 2—2·5 cm. long, the others subequal, 1·7—2 cm. long, the 3 lower connate for 2—5 mm. *Stamens* arcuate or suberect; filaments 1·2—1·4 cm. long; anthers linear-sagittate, 5—5·5 mm. long, the apiculus small, acute or subacute, about 0·5 mm. long. *Ovary* oblong, 3 mm. long; style 2—2·2 cm. long, the branches slender, 2—2·5 mm. long, cuneate at the apex. *Capsule* and seeds not seen.

Rocky mountain slopes in the Clanwilliam Division.

Type. *Leipoldt* 3580 in the Bolus Herbarium.

Flowering period. December—January.

CLANWILLIAM. Pakhuis Mt., above 3,500 ft., *Leipoldt* 3580 (BOL): Cedarberg Mts., between Pakhuis and Heuning Vlei, *Esterhuysen* 7432 (BOL).

The wide 4—6-nerved leaves, with fairly broad conduplicate petioles sheathing the base of the stem, are similar to those of *T. nemorosa* but the stem and flowers closely resemble those of *T. ramosa.* Apart from the much wider leaves, it differs from *T. ramosa* in having a stouter stem with shorter and more erect branches which have a very short internode below the first flower, the bracts and bracteoles firmer and more acute, the filaments shorter and the anthers with a smaller apiculus.

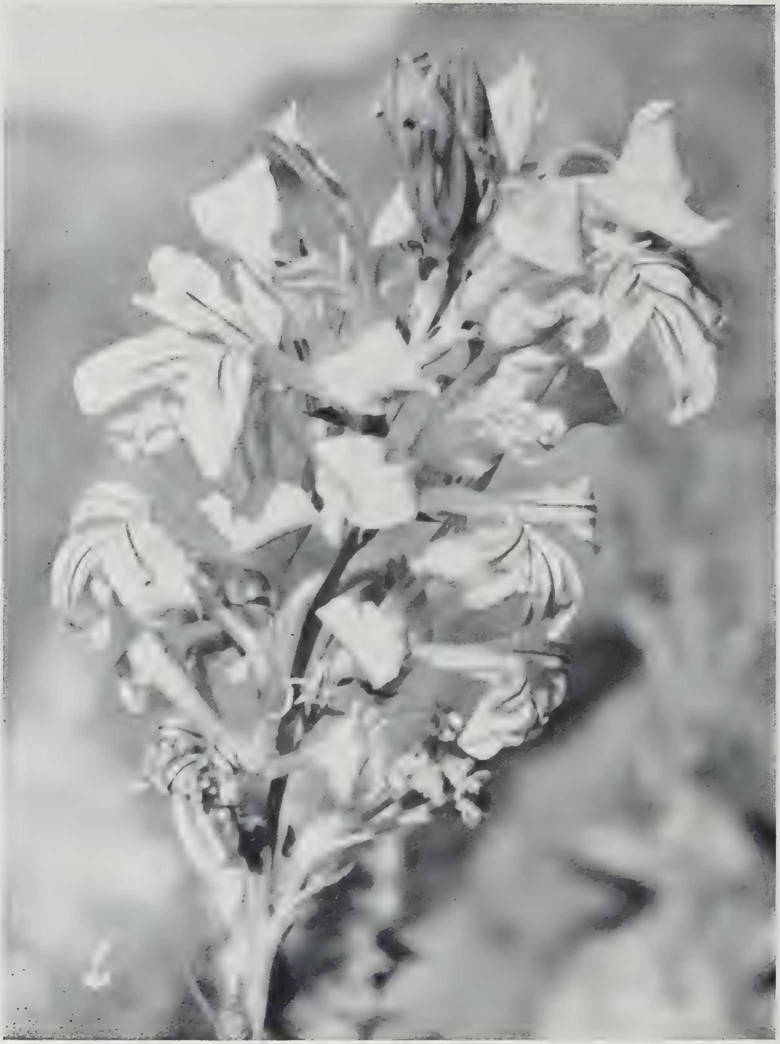

Plate XXXIII. *Tritoniopsis lata* (L. Bolus) Lewis, × approx. 1½.
(Wesselsgat, near Elgin, *Rycroft* 2163.)
Photograph by Prof. H. B. Rycroft.

These same characters, as well as the shape of the perianth lobes, distinguish this species from *T. pulchella.*

5. **T. lata** (L. Bolus) Lewis comb. nov. (Fig. 1 F, Plate xxxiii). *Hebea lata* L. Bolus, Journ. Bot. 68 : 106 (1930). *Exohebea lata* (L. Bolus) Foster, Contrib. Gray Herb., Harvard Univ., No. 127 : 38 (1939).

Corm subglobose or depressed-globose, 3·5—6 cm. diam.; tunics of densely matted reddish brown fibres, with a thick neck 10—18 cm. long. *Stem* simple (rarely with 1 short erect branch), rigid, 30—70 cm. high, usually 45—60 cm., 2—3·5 mm. diam. near the base. *Basal leaves* 1—3, linear or linear-lanceolate, acuminate, 15—60 cm. long, 3—8 mm. wide, 3-nerved (rarely 4), sometimes brown and dead at time of flowering; *cauline leaves* 3—5, the lower 2 or 3 subulate, 5—1 cm. long, the upper 1 or 2 sometimes 1—2 mm. long and sometimes minute vestigial traces. *Spike* 7—15 cm. long, fairly closely or sometimes somewhat laxly 5—18-flowered. *Bract* and *bracteoles* brown, firm or more or less membranous and fairly soft, oblong or ovate-oblong, acute or subacute, mucronulate, 0·6—1·3 cm. long, equal or the bracteoles up to 3 mm. longer than bracts. *Flowers* zygomorphic, pale or deep pink, the 3 lower lobes with a crimson or magenta spot near the middle of the blade, extending in a medial line—usually between two white lines—down the claw; *perianth tube* straight, 0·6—1·1 cm. long; *lobes* spathulate or occasionally oblong-spathulate, obtuse or sometimes subacute or subtruncate, the dorsal 2·3—3·3 cm. long, 0·7—1·2 cm. wide, the others subequal, 1·8—2·5 cm. long, 5—9 mm. wide, the 3 lower connate for 5—7 mm. *Stamens* arcuate; filaments 1·7—2 cm. long; anthers linear-sagittate, 5—7 mm. long, the apiculus 1—2 mm. long, acuminate, often bipartite and recurved. *Ovary* oblong, about 3 mm. long; style 2·6—2·8 cm. long, the branches 3—4 mm. long, cuneate at the apex, occasionally retuse or shortly bilobed. *Capsule* greenish or pallid, ellipsoid, 2—2·5 cm. long; seeds up to 5 mm. long, fairly broadly winged.

Sandy and rocky places on mountain slopes and plateaux.

Type. *Bolus,* No. 18914 in the Bolus Herbarium.

Flowering period. Usually April—May, sometimes also February—March.

TULBAGH. Witsenberge, near Tulbagh, *Burchell* 8276 (K); Witsenberg Flats, 800 ft., *Marloth* 1729 (PRE).

WORCESTER. Du Toits Kloof, *Loubser* 431 (NBG); Boschjesveld Mts., *Stokoe* (No. 55580 in SAM); 20 miles S. of Worcester, *Andreae* 329 (PRE).

WELLINGTON. Bains Kloof, 700 ft., *Marloth* 12026 (PRE).

PAARL. Top of Drakenstein Mts., near Dal Josaphat, 2,500 ft. *Tyson* 851 (SAM); top of Klein Drakenstein Mts., *Galpin* 10597 (PRE); Emerald Dome, *Esterhuysen* 10076 (BOL); *Stokoe* (No. 57991 in SAM); Berg River Hoek, *Barker* 2963 (NBG); French Hoek, *Bond* 355 (NBG); French Hoek Pass, *Thorns* (NBG); *Lewis* (No. 20309 in BOL); Limietberg, *Esterhuysen* 1597 (BOL); S.W. slopes of Haalhoek Sneeuwkop, 3,000—4,000 ft., *Esterhuysen* 15181 (BOL, NBG, PRE).

STELLENBOSCH. Jonkershoek, *Wasserfall* 96 (NBG); same, 2,500—4,000 ft., *Esterhuysen* 18486 (BOL, PRE); Jonkershoek Twins, 3,000—4,000 ft., *Esterhuysen* 11470 (BOL); Simonsberg, *Drege* 1580 b (P); same, 3,500—4,000 ft., *Esterhuysen* 25460 (BOL); Spitzkop, Banhoek Mts., *Esterhuysen* (No. 28679 in PRE).

SOMERSET WEST. Mountains above Gordons Bay, *Marloth* 4509 (PRE).

CALEDON. Sir Lowrys Pass, *Gill* (No. 52360 in SAM); *Lewis* 138 (SAM); between Sir Lowrys Pass and Elgin, *Barker* 1549 (NBG); Wesselsgat, near Elgin, *Rycroft* 2163 (NBG); Houwhoek Mts., 1,800 ft., *Guthrie* 2318 (BOL); *Bolus* (No. 18914 in BOL); same, 2,500 ft., *Schlechter* 7566 (BOL, PRE); lower slopes of Palmiet River Mts., near Elgin, *Leighton* 420 (BOL); near Rooi Els, *L. Bolus* (No. 23188 in BOL); *Stephens* (No. 14764 in BOL); Paardeberg, above Kleinmond, *Stokoe* (No. 63472 in SAM); Viljoens Pass, *Pillans* (No. 26617 in BOL); Hermanus, *Galpin* 12856 (PRE); Klein River Mts., near Stanford, *Stokoe* (No. 65597 in SAM); slopes of Babylons Tower, Klein River Mts., *Zinn* (No. 53690 in SAM); Shaws Mt., *T. Barnard* (No. 26617 in BOL); near top of Shaws Pass, S. side, *Lewis* 2242 (SAM); *Barker* 6125 (NBG); foothills of Riviersonderend Mts., *Lewis* 2279 (SAM); mountains near Caledon and Genadendal, *Ecklon* and *Zeyher* 70 (56.5), partly (SAM); mountains at Grietjesgat, between Sir Lowrys Pass and Palmiet River, 2,000—4,000 ft., *Ecklon* and *Zeyher* 56.6 (PRE).

This fairly common and widespread species was confused with *T. ramosa* by Ecklon and Zeyher, Klatt and others, and some of the specimens I have seen which were distributed under the same number by Ecklon and Zeyher, as *Hebea ramosa* Eckl., are *Tritoniopsis ramosa*, while others are *T. lata*. The corm of this species is larger than that of *T. ramosa* and the whole plant is more robust, with a taller stem which is very rarely branched—of the many specimens examined only two with one very short branch each have been seen—the spike usually with more numerous closely arranged flowers, and the flowers themselves slightly larger with the dorsal perianth lobe wider. In *T. ramosa* all the lobes are fairly narrow and more or less equal in width, or the dorsal is sometimes up to 1 mm. wider than the others, whereas in *T. lata* it is 2—3 mm. wider than the 3 lower lobes.

In Contributions from Gray Herbarium of Harvard University No. 127, p. 38 (1939), Foster published the following note under this species: "To the synonymy of this species and its variety, I suspect that two more names should be added. In 1937, Grey, Hardy Bulbs 1 : 163–64, mentioned and briefly described a *Hebea alata*, which he ascribed to (L.) L. Bol., based on *Gladiolus alatus* L., and *H. alata* var. *longibracteata* L. Bol. I have been unable to find that Mrs. Bolus made such a new combination, and the only variety *longibracteata* which I have found in *Hebea* is that described by Mrs. Bolus under *H. lata*. Probably there has been a confusion, based on the similarity of the name, between *G. alatus* and *Hebea lata*".

Var. **longibracteata** (L. Bolus) Lewis comb. nov.

Hebea lata L. Bolus var. *longibracteata* L. Bolus, Journ. Bot. 68 : 107 (1930). *Exohebea lata* var. *longibracteata* (L. Bolus) Foster, Contrib. Gray Herb., Harvard Univ., No. 127 : 38 (1939).

Spike, *bracts* and *bracteoles* usually longer than in var. *lata*, and *perianth lobes* slightly narrower; *spike* up to 24 cm. long and 24-flowered; *bract* and *bracteoles* up to 1·6 cm. long; dorsal perianth lobe 5—8 mm. wide, the others 4—6 mm. wide.

Rocky mountain slopes in the Wellington, Worcester and Ceres Divisions.

TYPE. *Bolus* 4069 in the Bolus Herbarium.

Flowering period. March.

WELLINGTON. Among Restionaceae on southern slopes of Drakensteinberg, near Bains Kloof, 1,600 ft., *Bolus* 4069 (BOL).

WORCESTER. Bains Kloof, *Barker* 7264 (NBG); *Galpin* 12626 (PRE); same, rocky W. slopes, 2,000—3,000 ft., *Esterhuysen* 25622 (BOL); Baileys Peak, Bains Kloof, eastern slopes, 3,000 ft., *Esterhuysen* 22749 (BOL); Du Toits Kloof, S.E. slopes of Molenaarsberg, *Esterhuysen* 17249 (BOL); same, stony slopes and plateau, 3,000 ft., *Esterhuysen* 22776 (BOL).

CERES. Michells Pass, *L. Bolus* (No. 26620 in BOL).

The type specimen is exceptionally tall with a longer spike than usual, and a short erect abortive branch near the middle of the stem. Other plants collected in the vicinity closely resemble the var. *lata* but have slightly longer bracts and bracteoles.

6. **T. nemorosa** (E. Mey. ex Klatt) Lewis comb. nov. (Fig. 2 A). *Antholyza nemorosa* E. Mey. ex Klatt Erganz. 12 (1882); Dur. & Schinz Consp.

Fl. Afr. 5 : 229 (1895). *Schweiggera nemorosa* E. Mey., Flora ii, Besond. Beigab. 109 (1843), *nomen nudum*. *Gladiolus nemorosus* (Klatt) Baker Handbk. Irid. 226 (1892); N. E. Br., Journ. Linn. Soc. 48 : 27 (1928). *G. montanus* (L. f.) var. *nemorosus* (Klatt) Baker, Fl. Cap. 6 : 164 (1896). *Hebea nemorosa* (Klatt) L. Bolus, S. Afr. Gard. 19 : 123 (1929). *Exohebea nemorosa* (Klatt) Foster, Contrib. Gray Herb., Harvard Univ., No. 127: 38 (1939).

Corm not seen, 20 cm. or more below ground, the neck 20 cm. or more long, of coarse reddish brown fibres. *Stem* stout, about 1—1·5 m. high, 5—8 mm. diam. near the base, usually with 2—3 suberect branches. *Basal leaves* 5—7, distichous, firm or rigid, the petioles wide and conduplicate, the blades lanceolate or ensiform, acuminate, 15—35 cm. long, 0·9—2·5 cm. wide, 5—7-nerved; *cauline leaves* 3—5, the lower 1 or 2 similar to the basal but much shorter and narrower, the upper 2 or 3 linear, acuminate, 5·5—1·5 cm. long. *Spike* 25—35 cm. long, laxly many-flowered. *Bract* and *bracteoles* firm, brown or greenish brown, oblong or ovate-oblong, obtuse or acute, 6—9 mm. long, the bracteoles slightly longer than bracts. *Flowers* zygomorphic, bright yellow, usually with a dark purplish maroon median line on the 3 lower lobes; *perianth tube* 7—8 mm. long, straight, slightly expanded at the throat; *lobes* oblong-spathulate, truncate or obtuse, the dorsal 2·5 cm. long, 7—8 mm. wide, the others 1·8—2 cm. long, 5—6 mm. wide, the 3 lower connate for 4 mm. *Stamens* suberect; filaments 1·2—1·5 cm. long; anthers linear-sagittate, 7—9 mm. long, the apiculus short and more or less bifid. *Ovary* rotund, about 3 mm. long; style 2—2·3 cm. long, the branches filiform, slightly flattened and cuneate at the apex, occasionally retuse or bifid. *Capsule* large and inflated, reddish brown, ovoid or globose, about 3 cm. long; seeds up to 8 mm. long.

Confined to the Clanwilliam Division, in stony ground or among rocks on the lower slopes of mountains.

LECTOTYPE. *Drege* 1578 in the Herbarium of the National Natural History Museum, Paris.

Flowering period. November—December.

CLANWILLIAM. Olifants River Valley, *Drege* 1578 (P); between Lange Vallei and Olifants River, 1,000—1,500 ft., *Drege* (K); Olifants River Valley, 17—18 miles N. of Citrusdal, *T. Barnard* (No. 68437 in SAM); Elands Kloof, *Stokoe* (No. 55596 in SAM); near Elands Kloof, *Mathews*, N.B.G. 2088/29 (BOL, K); Cedarberg, *Salter* (No. 26636 in BOL); *Thode* A 2183 (PRE); upper southern slopes above Kradouw Krantz, *Pearson* 5305 (BOL); Nieuwoudt Pass, *Bond* 1321 (NBG); *Salter* 5063 (BOL, PRE, SAM); *Esterhuysen* 7159, 17965 (BOL).

As the type in the Berlin-Dahlem Herbarium is missing and presumably destroyed, an isotype in the Natural History Museum Herbarium in Paris has been selected as the lectotype. It is possible that Drege's specimens in Kew Herbarium might also be an isotype but there

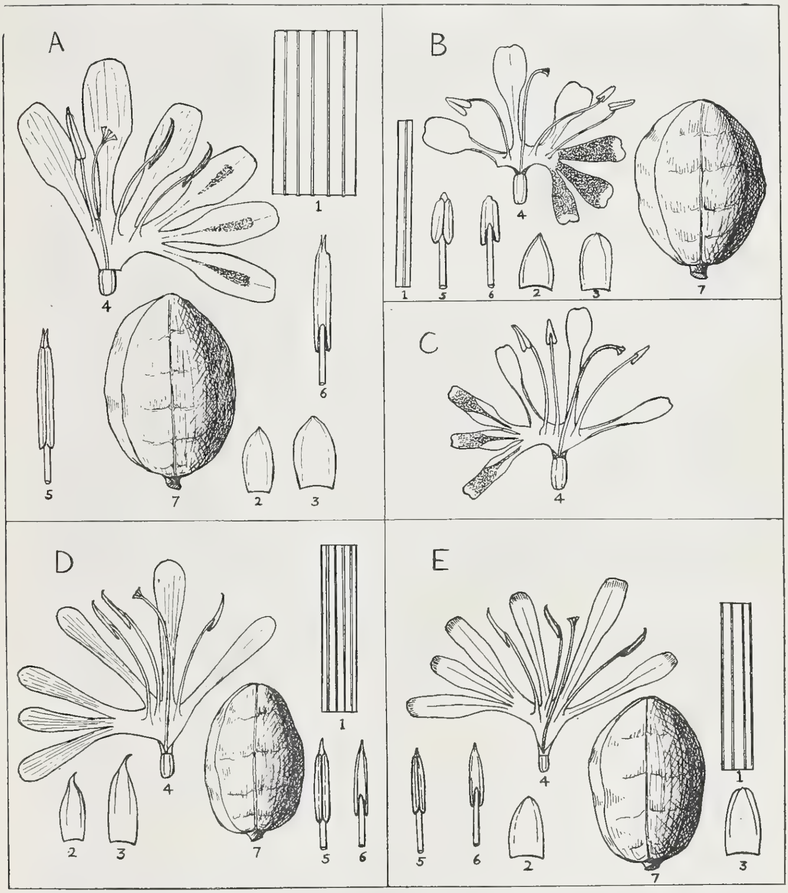

Fig. 2.—A. *T. nemorosa*. B. *T. parviflora*. C. *T. parviflora* var. *angusta*. D. *T. elongata*. E. *T. dodii*.
1. Part of leaf. 2. Bract. 3. Bracteoles. 4. Flower laid open. 5. Anther and part of filament, front view, × 2. 6. Same, back view, × 2. 7. Capsule.
Del. G. J. Lewis.

is no number on Drege's label. The species is the tallest and most robust in the genus and is readily distinguished by the height of the stem, with its long spike and yellow flowers.

7. **T. parviflora** (Jacq.) Lewis comb. nov. (Fig. 2 B). *Gladiolus parviflorus* Jacq. Obs. 4 : 2, t. 78 (1771); Willd. Sp. Pl. 1 : 208 (1798). *Hebea parviflora* (Jacq.) L. Bolus, S. Afr. Gard. 19 : 123 (1929). *Exohebea parviflora* (Jacq.) Foster, Contrib. Gray Herb., Harvard Univ., No. 127 : 38 (1939); Lewis in Adamson & Salter Fl. Cap. Pen. 247 (1950). *Gladiolus montanus* L. f. Suppl. 95 (1781); Willd. 1. c. 1 : 208. *Antholyza montana* (L. f.) Ker in Konig & Sims Ann. Bot. 1 : 233 (1805); Lodd. Bot. Cab. 11, t. 1022 (1825); Dur. & Schinz Consp. Fl. Afr. 5 : 229 (1895). *Gladiolus tabularis* Pers. Syn. 1 : 44 (1805), pro parte. *Hebea orchidiflora* (Andr.) Eckl. Top. Verz. 43 (1827), as to plant. *Antholyza orchidiflora* (Andr.) Klatt, Linnaea 32 : 733 (1863), as to plant; Dur. & Schinz 1. c. 229. *Gladiolus arenarius* Baker, Journ. Linn. Soc. 16 : 178 (1877); Handbk. Irid. 226 (1892) and Fl. Cap. 6 : 163 (1896), pro parte. *Hebea arenaria* (Baker) L. Bolus, S. Afr. Gard. 19 : 123, pro parte. *Antholyza fragrans* E. Mey. ex Klatt Erganz. 13 (1882). *Schweiggera montana* E. Mey. in Herb. Drege.

Corm ovoid or subglobose, 2—3 cm. diam.; tunics of coarse wiry dark reddish brown fibres, the neck usually thick, hard, compact and cylindrical, 7—13 cm. long. *Stem* rigid, simple, curved just above the neck, 15—40 cm. high (usually 18—25 cm.), 1·5—3 mm. diam. near the base. *Basal leaves* 5—7, with slender petioles usually extending shortly above ground, the blades firm, linear or subulate, acuminate, 8—22 cm. long, 2—5 mm. wide, 1-nerved or occasionally with 2; *cauline leaves* 2 or 3, very much reduced, the lowest usually subulate and 1—3 cm. long, the upper 1 or 2 minute. *Spike* 3—12 cm. long, usually closely 8—20-flowered. *Bract* and *bracteoles* rigid, green at the base and brown above, ovate or oblong, obtuse, the former 5—8 mm. long and the latter 6—9 mm. *Flowers* zygomorphic, with a sweet spicy scent which persists for many years after drying, the 3 upper lobes pale to bright yellow, the tube and 3 lower lobes deep maroon, purple or occasionally purplish red, with the lower half of the blade sometimes more or less translucent and the apex often yellowish at first but soon becoming brown; *perianth tube* 3—4 mm. long; *lobes* retuse or emarginate, the 3 upper spathulate with slightly undulate blades and 3 lower distinctly undulate, cuneately oblong-spathulate or the blades sometimes panduriform with wide translucent margins in the lower half and slightly wider near the base than the apex; dorsal lobe 1·4—1·7 cm. long, 4—6 mm. wide near the apex, with a narrow claw as long as the blade or slightly longer; upper lateral lobes

1—1·4 cm. long, 3·5—5 mm. wide, with canaliculate claws as long as the blade or slightly shorter, connate with the 3 lower lobes for about 1 mm. then curved up and back towards the dorsal; 3 lower lobes alike, 1—1·3 cm. long, 3—4 mm. wide, the claws shorter than the blades, connate for 3—4 mm. *Stamens* yellow, arcuate; filaments 1·2—1·4 cm. long; anthers sagittate, 3—4 mm. long, the apiculus very short and obtuse or acute or sometimes wanting. *Ovary* oblong, 4—5 mm. long; style about 1·5 cm. long, the branches cuneate, about 1 mm. long. *Capsule* large and inflated, pale reddish brown, subglobose, 2·4—3·4 cm. long; seeds up to 9 mm. long.

Sandy ground among rocks on mountains and flats near the foot of mountains.

TYPE. Jacquin Obs. 4, t. 78.

Flowering period. November—January.

CLANWILLIAM. Olifants River Valley, Brakfontein, *Ecklon* and *Zeyher* 76 (PRE).

MALMESBURY. Riebekskasteel, 1,000 ft., *Drege* (No. 48507 in SAM).

TULBAGH. Near Tulbagh Waterfall, 800 ft., *Bolus* (No. 26624 in BOL); De Hoek Estate, near Saron, *Lewis* (No. 26623 in BOL); Saron, in mountains, 2,000 ft., *M. Schlechter* 1735 (PRE); Tulbagh, *Ecklon* 72 (SAM).

WORCESTER. Du Toits Kloof, 2,000—4,000 ft., *Drege* (K, P); *Esterhuysen* 22304 (BOL); Worcester, near Waterfall, *Ecklon* 71 (SAM); Stettynsberg, 3,000—4,000 ft., *Esterhuysen* 11059 a (BOL, PRE).

WELLINGTON. Witte River Valley, *Thorne* (No. 46517 in SAM); Bains Kloof, *Grant* 2642 (BOL, PRE).

PAARL. French Hoek Pass, 3,000 ft., *Compton* 8181 (NBG); *Taylor* 1483 (PRE); French Hoek, 900 ft., *Phillips* 1322 (SAM); Haalhoek Sneeuwkop, 3,000—4,000 ft., *Esterhuysen* 9679 a (BOL); *Stokoe* (No. 56444 in SAM); Slanghoek Mts., Witteberg, 3,000—4,000 ft., *Wasserfall* 629 (NBG).

STELLENBOSCH. Banhoek, *Martley* 4 (BOL); Jonkershoek, *Compton* 15287 (BOL, NBG); near Stellenbosch, *Worsdell* (K).

CAPE. Cape Peninsula, *Ecklon* 10 (G, K, PRE); top of Table Mt., *Pappe* (No. 21446 in SAM); slopes N. of Window Stream, Kirstenbosch, *Esterhuysen* 17822 (BOL); Orange Kloof, *Salter* 9737 (BOL); Cape Flats, near Rondebosch, *Bolus* 3837 (BOL, PRE); Flats near Claremont Sanatorium, *Dod* 484 (BOL, K); Retreat Flats, *Dod* 3608 (BOL); Steenberg Plateau, *Lewis* 799 (SAM); *Salter* 2959 (BOL); Muizenberg Mt., *Andreae* 125 (PRE); *Salter* 1881 (K); *Moss* 8145 (PRE); mountains between Muizenberg and Silvermine, *Andreae* 125 (PRE); Silvermine Valley, *Esterhuysen* 1767 (BOL); Chapmans Peak, 700 ft., *Wasserfall* 702 (NBG); Smitswinkel, *Middlemost* 1675 (NBG); Rooihoogte, near Smitswinkel, *Compton* 15503 (NBG); *Galpin* 12735 (PRE); Cirkels Vlei, *Salter* (No. 26621 in BOL); Cape Point Reserve, *Leighton* 382 (PRE).

SOMERSET WEST. Foot of Sir Lowrys Pass, *Lewis* 5350 (NBG).

CALEDON. Sir Lowrys Pass, *Drege* (P); *Ryder* 118 (K); Houwhoek, *Zeyher* (No. 48503 in SAM); *Lewis* 5316 (NBG); *Maguire* 1242 (NBG); *Galpin* 4725 (PRE); Highlands, *Compton* 14079 (NBG); Elgin, *Lewis* 984 (SAM); Viljoens Pass, *Salter* 4022 (BOL); Nuberg, near top of Viljoens Pass, *Stokoe* (No. 68322 in SAM); near Villiersdorp, *Barker* 311 (NBG); Palmiet River, *Compton* 14137 (NBG); *Barker* 1560 (NBG); *Pillans* 8503 (BOL); Palmiet River Mts., *Stokoe* (No. 60129 in SAM); Arieskraal, *Leighton* 805 (BOL); Riviersonderend, *Van Niekerk* 687 (BOL).

BREDASDORP. Baardscheerdersbosch, between Elim and Gansbaai, *Stokoe* (No. 59835 in SAM); Bredasdorp, *Du Toit*, N.B.G. 2408/29 (BOL); same, mountain top, *Galpin* (No. 26625 in BOL, No. 11299 in PRE, K); Gunners Quoin, *Long* 1 (BOL); Rietfontein, *Smith* 5057 (PRE).

WITHOUT LOCALITY. *Thunberg* (named *Gladiolus trinervis* in Herb. Thunb., UPS); *Masson* (G); *Drege* (G); *Krook* (K); *Sparrman* 162 (type of *Gladiolus montanus* L. f., LINN); *Zeyher* 1612 (locality incorrectly given as Bushmans River Mouth, G, K, SAM).

In the South African Museum Herbarium there are some specimens of *T. unguicularis* under Zeyher's number 1612, collected by him on the top of Table Mt., and under the same number specimens of *T. parviflora* for which the locality is given as Bushmans River Mouth. There has obviously been some confusion and it is very possible that both species were collected by Zeyher on Table Mt. The most easterly record for the genus is the George Division, and for *T. parviflora* the Bredasdorp Division.

As detailed accounts of the confusion about this species have been given by N. E. Brown (Journ. Linn. Soc. 48 : 26 (1928)) and Foster (Contrib. Gray Herb. No. 127 : 38 (1939)), it is not necessary to repeat all the particulars here. It was pointed out by Dr. Brown that in the Flora Capensis (6 : 163) Baker included two species under *Gladiolus arenarius* (a new name given by him when he transferred *Antholyza orchidiflora* to Gladiolus), one being *Gladiolus parviflorus* Jacq. and the other a species which Brown presumed to be new and named *G. fraternus* (= *Tritoniopsis unguicularis* (Lam.) Lewis). *G. montanus* L. f. is a synonym of *G. parviflorus* Jacq., but as defined by Baker in the Flora Capensis, *G. montanus* is a mixture of two or three species which are quite distinct from *G. parviflorus* Jacq.

On the type sheet of *G. montanus* in the Linnaean Herbarium (59.24) there is a complete specimen of *Tritoniopsis parviflora* on the left (*Sparrman* 162, the type of *Gladiolus montanus*), and on the right are two inflorescences of *T. unguicularis.* The latter are possibly a later addition and might perhaps have been received from Thunberg. In Thunberg's herbarium there is one sheet of *T. parviflora*, named *Gladiolus trinervis* by Thunberg (an unpublished name), and one sheet which he named *G. montanus.* According to N. E. Brown this second sheet equals *G. montanus* L. f., but when I examined the Iridaceae in Thunberg's herbarium in Uppsala in 1949, I noted that it was the same as *G. fraternus* N. E. Br., i.e. *Tritoniopsis unguicularis*, and matched the two right-hand spikes on sheet 59.24 in the Linnaean Herbarium, but not *Sparrman* 162.

Thunberg's description of *Gladiolus montanus* seems to have been drawn from the specimens of *Tritoniopsis unguicularis* rather than *T. parviflora*, e.g. he described the leaves as 3-nerved, which is correct for the former but not the latter species. Both occur on top of Table Mt., the locality given by Thunberg, but he gave the flowering months as February, March, April, which is too late for *T. parviflora.* His description of the flowers—"corollae limbus ringente-bilabiatus; labium superius tripartitum macula purpurea; inferius profundus tripartitum"—is puzzling, as the lower and not the upper lip is marked with purple in both species, in *T. unguicularis* the markings, when present, being fairly pale and not very conspicuous, while in *T. parviflora* the 3 lower lobes are almost entirely purple or deep maroon. An examination of Thunberg's figure would probably clarify this point and make it possible to decide which of the two species he actually described, but unfortunately the figure is missing from the only copy of his *Dissertationes* available here and I have not seen it. For the present *Gladiolus montanus* Thunb. (not L. f.) is placed in the synonymy under *Tritoniopsis unguicularis*, with a query.

Var. **angusta** (L. Bolus) Lewis comb. nov. (Fig. 2 C). *Hebea angusta* L. Bolus, Journ. Bot. 68 : 106 (1930). *Exohebea angusta* (L. Bolus) Foster, Contrib. Gray Herb., Harvard Univ., No. 127 : 36 (1939).

Differs from var. *parviflora* in having a slightly longer and laxer spike, slightly larger flowers with narrower perianth lobes and the dorsal lobe with a longer claw, at least twice as long as the blade.

Corm, stem, leaves and *bracts* as in var. *parviflora. Spike* 6—18 cm. long, laxly 7—21-flowered. *Flowers* dull yellow with the 3 lower lobes and sometimes also the 3 upper more or less brownish, dull purple or reddish, the claws of the 3 upper with narrow hyaline margins and blades of the 3 lower with wide hyaline margins; *perianth tube* 4—5 mm. long; *lobes* obtuse, truncate or emarginate, 2—3 mm. wide, the dorsal 1·5—2 cm. long, occasionally up to 4 mm. wide, with the claw twice as long as the blade or more; upper lateral lobes 1·3—1·5 cm. long, the claw as long as the blade or slightly longer, connate with the lower lobes for about 2 mm.; 3 lower lobes 1·3—1·5 cm. long, connate for about 4 mm., the claws slightly shorter than the somewhat panduriform blades. *Stamens* with filaments 1·5—1·9 cm. long, otherwise as in var. *parviflora. Gynaecium, capsule* and *seeds* as in var. *parviflora.*

Sandy ground on or at the foot of mountains in the Piketberg, Ceres and Caledon Divisions.

TYPE. *Bolus* 7455 in the Bolus Herbarium.

Flowering period. December.

PIKETBERG. Twenty-four River Mts., above Porterville, *Esterhuysen* 16617 (BOL, NBG).

CERES. Foot of mountains near Ceres, *Bolus* 7455, 9650 (BOL); Skurfdeberg and Twenty-four River Mts., *Zeyher* (No. 54275 in SAM); Elands Kloof, *Lewis* 841 (SAM); *Bond* 709 (NBG); same, 3,200 ft., *Compton* 16781 (NBG).

CALEDON. Near Hermanus, *Bolus* (No. 26642 in BOL); Hermanus, *T. Barnard* (No. 26643 in BOL); *Lewis* 5348 (NBG).

In the thirty years since Dr. L. Bolus established this as a separate species, more material has been collected which now connects it so closely with *T. parviflora* that it cannot be regarded as more than a variety. The widespread var. *parviflora* is very variable and one or two of the forms which have been placed in it are more or less intermediate between the two varieties, i.e. *Grant* 2642 from Bains Kloof, and *Salter* (BOL 26621) from Cirkels Vlei, Cape Peninsula.

Hybrids between *T. parviflora* var. *angusta* and *T. dodii* have been recorded from the foot of mountains at Hermanus (*Lewis* 5349), where both parents were found flowering together at the same time, the latter just starting to flower and the former nearly over.

8. **T. elongata** (L. Bolus) Lewis comb. nov. (Fig. 2 D). *Hebea elongata* L. Bolus, Journ. Bot. 68 : 106 (1930). *Exohebea elongata* (L. Bolus) Foster, Contrib. Gray Herb., Harvard Univ., No. 127 : 37 (1939).

Corm subglobose, 2·5—3·5 cm. diam.; tunics very dark reddish brown, with a hard compact cylindrical neck 15—25 cm. long. *Stem* simple, 38—60 cm. high, 2·5—3 mm. diam. near the base. *Basal leaves* brown and dead at time of flowering or sometimes 1 immature leaf present, linear-lanceolate, acuminate, 22 cm. or more long, 4—6 mm. wide, closely 3—4-nerved; *cauline leaves* wanting or sometimes 1—3 very reduced or minute scale-like vestigial traces. *Spike* 20—40 cm. long, laxly 12—38-flowered, straight or flexuose. *Bract* and *bracteoles* oblong or ovate-oblong, apiculate, 0·7—1·3 cm. long, brown and firm with brownish or colourless scariose margins, those of the bract very narrow and of the bracteoles fairly wide, the latter 1—2 mm. longer than the bracts. *Flowers* zygomorphic, dull dingy pink with dark reddish veins on the lobes; *perianth tube* 6—8 mm. long, straight, slightly expanded at the throat; *lobes* long unguiculate, oblanceolate, obtuse, 3—4 mm. wide, the dorsal 2—2·5 cm. long, the others subequal, 1·5—1·8 cm. long, the 3 lower connate for 4—5 mm. *Stamens* arcuate or subarcuate; filaments 1·3—1·6 cm. long; anthers linear-sagittate, 6—7 mm. long, the apiculus acute, about 1 mm. long. *Ovary* rotund, 2—3·5 mm. long; style 1·8—2·3 cm. long, the branches filiform, about 3 mm. long, slightly expanded and cuneate at the apex, occasionally retuse or very shortly bipartite. *Capsule* reddish brown, inflated, subglobose, 2·5—3·5 cm. long; seeds up to 1 cm. long, fairly broadly winged.

In hard clay and gravel soil on flats and low hill slopes in the Paarl Division.

TYPE. *Tyson* 853 in the South African Museum Herbarium, National Botanic Gardens, Kirstenbosch.

Flowering period. March—April.

PAARL. Dal Josaphat, on hills, 600 ft., *Tyson* 853 (SAM); *Lewis* 5357 (NBG); Berg River, between Paarl and Pont, 500 ft., *Drege* 1579 (P); Klapmuts, *T. Barnard* (No. 20697 in BOL).

The very elongated spike, conspicuously apiculate bract and bracteoles and dingy pinkish flowers distinguish this species, which appears to be fairly rare. Klatt cited *Drege* 1579 under *Antholyza ramosa* (= *Tritoniopsis ramosa*), but the specimen in the Berlin-Dahlem Herbarium which he must have seen has presumably been destroyed with the rest of the material of this genus. I have seen an isotype in the Herbarium of the Natural History Museum in Paris and identified it as *T. elongata*. Drege's locality, in the Paarl Division, is near the type locality of this species.

9. **T. dodii** (Lewis) Lewis comb. nov. (Fig. 2 E). *Hebea dodii* Lewis, Fl. Pl. of S. Afr. 14 : p. 549 (1934). *Exohebea dodii* (Lewis) Foster, Contrib. Gray Herb., Harvard Univ., No. 127 : 37 (1939); Lewis in Adamson & Salter Fl. Cap. Pen. 247 (1950).

Corm subglobose, 3—5 cm. diam.; tunics thick, of dark reddish brown wiry fibres, with a thick neck 10—20 cm. long. *Stem* simple, 20—55 cm. high, usually 40—50 cm., 2—2·5 mm. diam. near the base. *Basal leaves* 1—3, with slender petioles, the blades linear, tapering to base and apex, 15—35 cm. long, usually 3·5—5·5 mm. wide but occasionally up to 8 mm., firm, 2- or sometimes 3-nerved; *cauline leaves* 3—5, the lowest linear, acuminate, 3—6 cm. long, usually arising well below ground and more or less concealed within the neck, the upper 2—4 minute and scale-like. *Spike* 5—12 cm. long, laxly to fairly closely 8—22-flowered, usually 6—8 cm. long and 10—16-flowered. *Bract* and *bracteoles* dark brown or reddish brown, firm, coriaceous (rigid when dry), ovate or oblong, acute, subacute or obtuse, 0·7—1·1 cm. long, the bracteoles as long as the bract or slightly longer. *Flowers* zygomorphic, pale to deep pink, the lobes sometimes tipped with crimson and the 3 lower usually with a crimson mark or line near the middle; *perianth tube* straight or slightly curved, 5—8 mm. long, slightly expanded at the throat; *lobes* obtuse, truncate or occasionally emarginate, the 3 upper spathulate or oblong-spathulate, 3—5 mm. wide near the apex, the dorsal 2—2·3 cm. long and lateral 1·6—1·9 cm. long; 3 lower lobes like the upper or sometimes oblanceolate, 3—5 mm. wide, 1·6—1·9 cm. long, connate for 3—5 mm. *Stamens* arcuate; filaments 1·2—1·4 cm. long; anthers linear-sagittate, 4—6 mm. long, the apiculus subobtuse or acute and bifid, 0·5—1 mm. long. *Ovary* oblong or rotund, 2·5—3 mm. long; style 2 cm. long, the branches cuneate, 1·5—2 mm. long. *Capsule* large and inflated, ovoid or subglobose, about 2·5 cm. long, with fairly large widely winged seeds.

Rocky hills and mountain slopes near the coast in the southern parts of the Cape Peninsula, the Caledon and Bredasdorp Divisions.

TYPE. *Salter* 2986 in the Bolus Herbarium.

Flowering period. Usually February—April, but found also at various times throughout the year.

CAPE. Simonsberg, *Dod* 806 (BOL); hills W. of Simonstown, *Dod* 1016 (BOL); lower E. slopes of Groot Kop, Simonstown, *Leighton* 1644 (BOL); Simonstown Mts., *Dummer* 1271 (SAM); *Minicki* (Nos. 51396, 52014 in SAM); *Marloth* 599 (PRE); between Witsands and Redhill, *Lewis* 4806 (SAM); *Gillett* 1517 (BOL); near Smitswinkel, 1,300 ft., *Compton* 8707 (NBG); Cirkels Vlei, *Salter* 2986 (BOL, SAM); Klaver Valley, *Lewis* 110 (SAM); Schusterskraal, *Barker* 4004 (BOL, NBG); Bonteberg, *Barker* 814 (NBG); W. of Paulsberg, *Salter* 5763 (PRE); Olifantsbosch, *Galpin* 12734 (PRE).

CALEDON. Klein River Mts., *Stokoe* (Nos. 68323, 69590 in SAM); flats and lower mountain slopes, Hermanus, *T. Barnard* (No. 26641 in BOL); *Leighton* 359 (BOL); *Lewis* 5347 (NBG); top of Shaws Pass, *Davis* (No. 60707 in SAM).

BREDASDORP. The Poort, between Bredasdorp and Elim, *L. Bolus* (No. 26638 in BOL).

WITHOUT LOCALITY. *Elliot* 33 (G).

This species is nearest to *T. unguicularis*, with which it has sometimes been confused in the past, but the flowers are of a different colour and larger, with comparatively longer and narrower perianth lobes. In appearance it somewhat resembles *T. lata* but the flowers are smaller, with narrower lobes, and the capsule is much larger, inflated and ovoid or subglobose, instead of ellipsoid. It also resembles *T. elongata* but has a shorter spike and the bracts and bracteoles are not apiculate.

10. **T. unguicularis** (Lam.) Lewis comb. nov. (Fig. 3 A). *Moraea unguicularis* Lam. Illus. Gen. No. 490 (1791); Encyc. 4 : 274 (1797). *Vieusseuxia unguicularis* (Lam.) Roem. & Schult. Syst. 1 : 491 (1817), pro parte, excl. syn. *Exohebea unguicularis* (Lam.) Lewis, Ann. S. Afr. Mus. 40 : 132 (1954). *Gladiolus arenarius* Baker, Handbk. Irid. 226 (1892) and Fl. Cap. 6 : 163 (1896), pro parte. *Hebea arenaria* (Baker) L. Bolus, S. Afr. Gard. 19 : 123 (1929), pro parte. *Gladiolus fraternus* N. E. Br., Journ. Linn. Soc. 48 : 26 (1928). *Exohebea fraterna* (N. E. Br.) Foster, Contrib. Gray Herb., Harvard Univ., No. 127 : 37 (1939); Lewis in Adamson & Salter Fl. Cap. Pen. 247 (1950). *Gladiolus tabularis* Pers. Syn. 1 : 44 (1805), pro parte. ? *G. montanus* Thunb. Diss. Glad. 8, t. 1 (1784), Fl. Cap. 188 (1811) and ed. Schultes 45 (1823); non L. f. (1781).

Corm ovoid or subglobose, 2·5—3·5 cm. diam.; tunics of wiry dark reddish brown fibres, with a neck 6—12 cm. long. *Stem* simple, often curved just above the neck, 20—58 cm. high, usually 25—40 cm., 1·5—2 mm. diam. near the base. *Basal leaves* 5—9, with slender petioles, the blades linear-lanceolate, acuminate, 9—20 cm. long, 2·5—7 mm. wide, 2—3-nerved or occasionally 1-nerved; *cauline leaves* 2—3, the lowest brown, subulate, 2—5·5 cm. long, usually concealed by the basal leaves, the upper 1 or 2 varying from 1 cm. long to minute vestigial traces. *Spike* usually 3—5 cm. long, closely or fairly closely 7—20-flowered, occasionally 7—10 cm. long and somewhat lax. *Bract* and *bracteoles* firm, brownish, oblong or ovate, 5—9 mm. long, equal in length or the bracteoles slightly longer than bracts. *Flowers* zygomorphic, with a faint spicy scent, cream-coloured, usually with pale mauve or purplish marks towards the base of the 3 lower lobes; *perianth tube* 3—3·5 mm. long; *lobes* spathulate or the inner sometimes oblong-spathulate, all obtuse or slightly emarginate, 3—4·5 mm. wide near the apex, the claws canaliculate except in the dorsal lobe, the dorsal lobe 1—1·3 cm. long and others subequal, 0·9—1·1 cm. long, the 3 lower connate for 1·5—2 mm. *Stamens* arcuate; filaments 6—7 mm. long; anthers linear-sagittate, 4—5 mm. long, the apiculus acute, about 1 mm. long. *Ovary* ovoid, about 3 mm. long; style 9 mm. long, the branches cuneate, 1—1·5 mm. long. *Capsule* and seeds not seen.

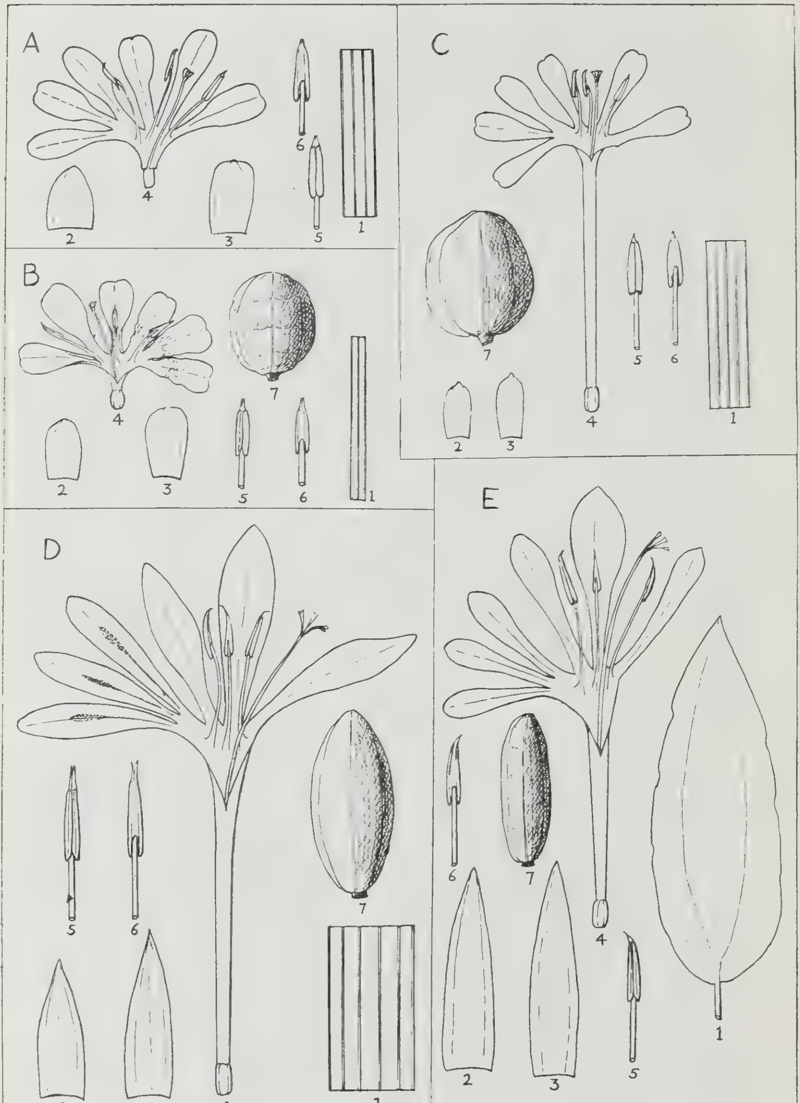

FIG. 3.—A. *T. unguicularis.* B. *T. caledonensis.* C. *T. nervosa.* D. *T. apiculata.* E. *T. flexuosa.*

1. A—D, part of leaf; E, leaf with part of petiole. 2. Bract, A—B × 1½; C—E, nat. size. 3. Bracteoles, A—B × 1½; C—E, nat. size. 4. Flower laid open, A—B × 1½; C—E, nat. size. 5. Anther and part of filament, front view, A—C × 2; D—E × 1½. 6. Same, back view, A—C × 2; D—E × 1½. 7. Capsule. *Del.* G. J. Lewis.

Mountain slopes and plateaux on the Cape Peninsula from Table Mt. to Chapmans Peak, in the Caledon Division from Steenbras to the Palmiet River and in the southern part of the Bredasdorp Division.

Type. *Sonnerat* in Herb. Lamarck, Natural History Museum Herbarium, Paris.

Flowering period. December—March.

CAPE. Top of Table Mt., *Zeyher* 1612 (SAM); *Bolus* 7426 (BOL, *s. n.* PRE); *Barker* 7212 (NBG); *Edwards* (No. 26633 in BOL, PRE); Table Mt., *Thunberg* (UPS, named *Gladiolus montanus*); *Lewis* 685 (SAM); *Prior* (K); *Burchell* 640 (type of *G. fraternus*, K, G); *Rodin* 3184 (BOL, K, PRE); *Kuntze* (K); *Gillett* 549 (K); *Drege* 8342 (G. K); *Dod* 2238 (or 2258) (BOL); Devils Peak, *Rehmann* 933 (BR); Nursery Gorge, Kirstenbosch, *Compton* 15494 (NBG); *Galpin* 12706 (PRE); top of Skeleton Gorge, *Esterhuysen* 11391 (BOL, PRE); Steenberg Plateau, *Lewis* 800 (SAM); *Salter* 2941 (BOL); near Ridge Peak, Muizenberg Mt., *Salter* 7971 (SAM); Muizenberg, *Penther* (PRE); mountains above St. James, *Moran* (PRE); mountains above Kalk Bay, *Bolus* 4002 (BOL, K); *Dod* 670 (K); Noordhoek Mt., *Jackson* (NBG).

CALEDON. Steenbras, *Salter* (No. 26635 in BOL); mountains N. of Steenbras River, *Salter* 4252 (BOL); Palmiet River Mts., *Stokoe* (No. 59833 in SAM); Oudebosch, *Stokoe* (No. 65596 in SAM); Palmiet River Valley, *Stokoe* 8837 (BOL).

BREDASDORP. Mountains near Elim, *Bolus* (No. 26634 in BOL).

Without Locality. *Sonnerat* (named *Moraea unguicularis* in Herb. Lamarck); *Jussieu* 3651, partly (P); *Ecklon* 71 (1. 12), partly (G).

The locality for *Ecklon* 71 (1. 12) is "Worcester, beim Waterfall, 1,000—2,000 ft.", and the flowering month December, but it is very unlikely that this is correct for *T. unguicularis*. In the South African Museum Herbarium there are specimens of *T. parviflora* under *Ecklon* 71, and in the Herb. Delessert, Geneva, there are two specimens of *T. unguicularis* and one of *T. parviflora* on the same sheet under the same number, named *Hebea tabularis* Pers. The confusion between *T. unguicularis* and *T. parviflora* has been discussed in a note under the latter species.

11. **T. caledonensis** (Foster) Lewis comb. nov. (Fig. 3 B). *Exohebea caledonensis* Foster, Contrib. Gray Herb., Harvard Univ., No. 127 : 37 (1939).

Corm ovoid or subglobose, 2·5—3 cm. diam.; tunics of wiry dark reddish brown fibres, with a hard compact cylindrical neck 7—11 cm. long. *Stem* simple, usually curved just above the neck, 30—58 cm. high, usually 40—45 cm., 1·5—2 mm. diam. near the base. *Basal leaves* 3—7, linear, 15—25 cm. long, 1—2 mm. wide, 1-nerved, not always fully developed at time of flowering; *cauline leaves* 2—3, the lowest brown, 2—3 cm. long, sometimes concealed by the basal leaves, the upper 1 or 2 much reduced and bract-like, 0·5—3 mm. long. *Spike* 3·5—10 cm. long, usually 7—8 cm. long and laxly 10—12-flowered, sometimes shorter, more compact and 6—10-flowered. *Bract* and *bracteoles* equal or the bracteoles slightly longer, oblong or ovate, obtuse, 4—7·5 mm. long, green at the base and brown above, coriaceous, firm. *Flowers* zygomorphic, with a faint musty scent, dull yellow, the 3 lower lobes sometimes with small purplish markings or a broad purple band near the middle; *perianth tube* 3 mm. long, slightly expanded at the throat; *lobes* undulate, emarginate, 3—4 mm. wide near the apex, the 3 upper more or less cuneate-spathulate and 3 lower cuneate-oblong, the latter with very short claws; dorsal lobe 0·9—1 cm. long; upper lateral lobes 8—9 mm. long, the claws canaliculate; 3 lower lobes alike, 8—9 mm. long, connate for 1·5—2 mm. *Stamens* arcuate; filaments 3—5 mm. long; anthers 3—4·5 mm. long, the apiculus obtuse or slightly bifid, 0·5—1 mm. long. *Ovary* ovoid or globose, 2·5 mm. long; style about 8 mm. long, the branches about 1 mm. long, cuneate. *Capsule* reddish brown, globose, inflated, about 1·5 cm. long; seeds up to 8 mm. long.

Rocky hill and mountain slopes in the Caledon Division.

TYPE. *Hafström* and *Lindeberg*, in Gray Herbarium, Harvard University.

Flowering period. November.

CALEDON. Near Caledon, *Hafström* and *Lindeberg* (GH); Honingklip, near Kleinmond, *Middelmann* (No. 69604 in SAM); hillside N. of Houwhoek Pass, 1,200 ft., *Galpin* 4726 (PRE); *Barker* 8810 (NBG); Houwhoek, *Maguire* 1242 a (NBG); Highlands, *Compton* 12282 (NBG); hill slope near Hawston, *Lewis* 5351 (NBG).

The specimens cited above have been compared with the type and although the flowers of the two plants on the type sheet are immature, there is no doubt at all that they are the same. The species is closely related to *T. unguicularis*, with similar small flowers, but differs in having fewer and narrower leaves which are always 1-nerved, and the flowers yellow instead of cream-coloured, with more undulate lobes, the 3 lower very shortly unguiculate and much wider in the lower half. The filaments and anthers are shorter than in *T. unguicularis*.

Some fruiting specimens from Michells Pass, Ceres Division, *Lewis* 5358, appear to be this species but this cannot be confirmed until the plants have been seen in flower.

12. **T. nervosa** (Baker) Lewis comb. nov. (Fig. 3 C). *Morphixia nervosa* Baker, Journ. Bot. (1876) 237; Journ. Linn. Soc. 16 : 98 (1877). *Ixia nervosa* Baker Handbk. Irid. 166 (1892); Fl. Cap. 6 : 85 (1896). *Tanaosolen nudus* N. E. Br., Trans. Roy. Soc. S. Afr. 20 : 262 (1932). *T. nervosus* (Baker) Lewis, Journ. S. Afr. Bot. 7 : 55 (1941).

Corm not seen, 12—15 cm. or more below ground, the neck (as far as seen) mostly hard, compact and cylindrical, 12—15 cm. or more long. *Stem* simple, usually curved just above the neck, 55—100 cm. high, 2—3·5 mm. diam. near the base. *Basal leaves* 5—6, distichous, linear-lanceolate, acuminate, 20—40 cm. long, 4—8 mm. wide, 2—3-nerved; *cauline leaves* 3—6, the lower 1—3 subulate or linear, 6·5—2 cm. long, the 1—3 upper minute and scale-like or up to 4 mm. long. *Spike* 10—25 cm. long, laxly 12—25-flowered. *Bract* and *bracteoles* firm, brown, oblong, subacute or acute, 5—9 mm. long, the bracteoles slightly longer than bracts. *Flowers* zygomorphic, scented, pale yellow or cream-coloured; *perianth tube* 3—4 cm. long, slender, straight or slightly curved near the throat, expanding gradually from 0·5—1 mm. diam. at the base to 1·5—2 mm. diam. at the throat; *lobes* subequal or the dorsal slightly longer than the others, 0·9—1·3 cm. long, 3—4 mm. wide near the apex, shortly unguiculate, the blade cuneate-oblong, obtuse or emarginate; 3 lower lobes connate for 1—2 mm. *Stamens* subarcuate; filaments 5—6 mm. long; anthers linear-sagittate, 4 mm. long, the apiculus obtuse, 0·5 mm. long. *Ovary* oblong, 2·5—4 mm. long; style 3·8—4·8 cm. long, the branches cuneate, 1—2 mm. long. *Capsule* reddish brown, inflated, ovoid or subglobose, about 2 cm. long.

In rock crevices on mountain slopes in the Clanwilliam, Piketberg and Ceres Divisions.

Type. *Zeyher* 1632 in Kew Herbarium.

Flowering period. December—January.

CLANWILLIAM. Algeria, Cedarberg, *Bond* 1320 (NBG); Pakhuis Mt., above 3,500 ft., *Leipoldt* 3581 (BOL, NBG, PRE); Pakhuis Pass, *Leipoldt* (No. 21508 in BOL, PRE); *Stokoe* (No. 55053 in SAM); Nieuwoudt Pass, *Esterhuysen* 7153 (BOL); *Salter* 5068 (BOL, SAM); hills 1 mile S.E. of Keerom, *Pillans* 8692 (BOL, SAM); western end of Elands Kloof, *Esterhuysen* 4159 (BOL, NBG, PRE); *Stokoe* (No. 55595 in SAM); without exact locality, *Mader* in Herb. Bolus 2175 (K); Keerom, W. slopes of Olifants River Mts., *Esterhuysen* 17917 (PRE).

PIKETBERG. Cardouw Mts., *Zeyher* 1632 (BOL, G, K, SAM); Porterville Mt., *Loubser* 421 (BOL).

CERES. Cold Bokkeveld, Tandfontein, 4,300 ft., *Schlechter* 10136 (type of *Tanaosolen nudus*, K, BOL, G, PRE); Skurfdebergen, *Primos*

(No. 45699 in SAM): *Marloth* 203 (PRE): de Straat. *Bond* 707 (NBG): Visgat, upper Olifants River Valley, *Esterhuysen* 13396 (BOL); eastern end of Elands Kloof, *Esterhuysen* 3961 (BOL); Elands Kloof, 3,000 ft., *Compton* 16791 (NBG); Onderboschkloof, upper Olifants River Valley, *Esterhuysen* 14288 (BOL. NBG. PRE): Cold Bokkeveld, *Adamson* D 39 (PRE).

This species is distinguished by its long slender perianth tube, about three times as long as the fairly small subregular lobes which closely resemble those of *T. unguicularis*.

13. **T. flexuosa** (L. f.) Lewis comb. nov. (Fig. 3 E). *Gladiolus flexuosus* L. f. Suppl. 96 (1781); Thunb. Diss. Glad. 9, t. 1 (1784), Prodr. 8 (1794). *Sphaerospora flexuosa* (L. f.) Klatt, Linnaea 32 : 726 (1863). *Acidanthera flexuosa* (L. f.) Baker, Berl. Monat. 19 : 15 (1876), Handbk. Irid. 186 (1892) and Fl. Cap. 6 : 131 (1896). *Exohebea flexuosa* (L. f.) Lewis, Ann. S. Afr. Mus. 40 : 4, t. 1 (1952).

Corm ovoid or subglobose, 1·5—2 cm. diam.; tunics matted, of brown or reddish brown wiry fibres, with a thick rope-like neck 9—15 cm. long. *Stem* fairly slender, simple, flexuose, 15—30 cm. high, 1—1·5 mm. diam. near the base. *Basal leaf* solitary, produced before the flowers, differentiated into a filiform petiole extending 2·5—5 cm. above ground and a distinct lamina rounded at the base and oblong or lanceolate-oblong, obtuse or acute, 3—5·5 cm. long, 1—2 cm. wide, 2-nerved, with more or less undulate margins; *cauline leaves* 4 or 5, brown at time of flowering, linear, acuminate, 4—7 cm. long, the lower half closely sheathing and partly amplexicaul, the upper part with firmly involute margins, appearing terete. *Spike* short, compact, 3—5-flowered. *Bract* and *bracteoles* light brown, firm, lanceolate, acuminate, 2·5—3·5 cm. long, equal or the bracteoles up to 5 mm. longer than bract. *Flowers* zygomorphic, pale salmon-pink, the 3 lower lobes with a crimson median line and sometimes also the 3 upper; *perianth tube* slender, straight or slightly curved, 3·4—3·8 cm. long, usually slightly expanded towards the throat; *lobes* oblanceolate, unguiculate, obtuse, subobtuse and minutely apiculate or subacute, the dorsal 2·5—3 cm. long, 5—8 mm. wide near the apex, the others subequal, 2—2·6 cm. long, 2·5—4 mm. wide, the 3 lower connate for 4—8 mm. *Stamens* subarcuate; filaments about 1·5 cm. long; anthers linear-sagittate, 7—8 mm. long, the apiculus acuminate, 1—2 mm. long. *Ovary* oblong, 3·5—4 mm. long; style 5—5·5 cm. long, the branches 3—4 mm. long, flattened, cuneate, sometimes retuse. *Capsule* reddish brown, ellipsoid, 1·5—2·2 cm. long, about 8 mm. in diam.; seeds about 5 mm. long, shortly winged.

Very local, in hard dry clay and stony soil on the lower northern slopes of Shaws Pass, Caledon Division.

TYPE. *Thunberg*, in Herb. Thunberg, Botanical Museum, Uppsala.

Flowering period. January—February.

CALEDON. Lower northern slopes of Shaws Pass, 5—5½ miles S. of Caledon, *Salter* 6853, 7222 (corms and basal leaves, BOL); *Lewis* 27 (corms and basal leaves, No. 52887 in SAM); *Lewis* 2243 (corms, fruits, immature leaves and flowers, No. 60708 in SAM); *Salter* 9032 (BOL); *Barker* 6102 (NBG).

WITHOUT LOCALITY. *Thunberg* (UPS, LINN).

The long bract and bracteoles and long-tubed flowers are similar to those of *T. apiculata*, to which this species is most nearly related, but the basal and cauline leaves are unlike those of any species in this genus though they somewhat resemble those of two species in the closely allied genus *Anapalina.* At the time of flowering there is no sign of the solitary basal leaf, with its clearly defined petiole and lamina; the specimens collected by Thunberg have no leaves or corm. A note on the rediscovery of this attractive and interesting species was published in 1952 in the Annals of the South African Museum (Vol. 40, p. 1).

14. **T. apiculata** (Bolus f.) Lewis comb. nov. (Fig. 3 D). *Gladiolus apiculatus* Bolus f., Ann. Bolus Herb. 2 : 106 (1917). *Hebea apiculata* (Bolus f.) L. Bolus, S. Afr. Gard. 19 : 123 (1929). *Exohebea apiculata* (Bolus f.) Foster, Contrib. Gray Herb., Harvard Univ., No. 127 : 36 (1939).

Corm subglobose, 3·5—6 cm. diam.; tunics thick, of coarse dark reddish brown fibres, the neck hard, compact and cylindrical, 12—18 cm. long. *Stem* simple (rarely with 1 or 2 short erect branches), rigid, straight or slightly flexuose, 25—40 cm. high, occasionally up to 50 cm., 2—3 mm. diam. near the base. *Basal leaves* 1—3, absent or sometimes 1 or 2 immature leaves present at time of flowering, usually fully developed 2 or 3 months later, the petiole slender and blade lanceolate or ensiform, acuminate, 15—32 cm. long, 0·5—2 cm. wide, 3—5-nerved (rarely 2); *cauline leaves* 4—5, green or brown at flowering time, subulate, 5·5—0·4 cm. long, the upper 1 or 2 much reduced and bract-like. *Spike* 2—16 cm. long, laxly or fairly closely 3—10-flowered, the flowers suberect. *Bract* and *bracteoles* reddish or reddish brown, somewhat membranous, soft or moderately firm, lanceolate, acute or acuminate, 2·5—5 cm. long (rarely 1·5—2·5 cm.), the bracteoles 1—9 mm. longer than bracts. *Flowers* zygomorphic, pale to fairly deep salmon-pink or pinkish mauve, the 3 lower lobes with a red or magenta median line on the lower half of the blade and claw; *perianth tube* straight or slightly curved, 4—7 cm. long, gradually dilating upwards from about 1 mm. diam. at the base to 2·5—5 mm. diam. at the throat; *lobes* oblanceolate, obtuse or subacute, the dorsal 2·5—4 cm. long, 0·6—1 cm. wide, the others subequal, 1·8—3·5 cm. long, 4—8 mm. wide, the 3 lower connate for 4—8 mm. *Stamens* suberect or arcuate; filaments 1·5—2 cm. long; anthers linear-sagittate, 0·8—1 cm. long, the apiculus more or less recurved and bipartite, 1·5—2 mm. long. *Ovary* oblong, 4—5 mm. long; style 6·2—9 cm. long, the branches slender, 5—7 mm. long, cuneate at the apex or occasionally retuse or shortly bilobed. *Capsule* pinkish brown, ellipsoid or ovoid-ellipsoid, 2—3 cm. long; seeds up to 8 mm. long, usually broadly winged at the base and apex and shortly on the sides.

In sandy and stony ground on lower slopes of the Langeberg from Swellendam to Mossel Bay Divisions, and on the Swartberg in the Ladismith Division.

LECTOTYPE. *Muir* 2016 in the Bolus Herbarium.

Flowering period. March—May.

SWELLENDAM. Tradouw Pass, 1,700 ft., *Wurts* 589 (NBG); *Lewis* 5448 (NBG).

RIVERSDALE. N. slopes of Langeberg in Garcias Pass, *Esterhuysen* 16995 (BOL); S. slopes of Langeberg, Garcia Forest Station, *Esterhuysen* 17253 (BOL, PRE); Garcias Pass, c. 1,200 ft., *Smith* 2753 (PRE); *L. Bolus* (No. 26627 in BOL); *Lewis* 5382 (NBG); Riversdale, *Ferguson* (No. 20696 in BOL); *Muir* (No. 28677 in PRE).

MOSSEL BAY. Langeberg, *Muir* 1310 (BOL); Vrijersberg (= Vreyersberg), 1,500 ft., *Muir* 2016 (BOL); Berg Kloof, *Lewis* 5415 (NBG).

LADISMITH. Seven Weeks Poort, on S.W. spur, 4,000 ft., *Wurts* 1659 (NBG).

WITHOUT LOCALITY. *Muir* (No. 26626 in BOL).

Under *Gladiolus apiculatus* Bolus f. cited *Muir* 1310 and *Muir* 2016 and the latter, which is more complete, has been selected as the lectotype. The former number was given to two separate collections, a flowering shoot collected in April 1914 and two plants with corms, leaves and short stems bearing old capsules, dated June 1914. On comparing these two fruiting specimens with the large amount of material of *Tritoniopsis apiculata* now available it was found that they do not belong to this species, the following differences being noted: (1) The corms are smaller, with finer fibres and a shorter neck. (2) The leaves are narrower. (3) The stems are shorter than the leaves, only 10 and 12 cm. high. (4) The bracts are very much shorter, about 7—8 mm. long. (5) The capsules are shorter and more rounded, less than 2 cm. long. These specimens do not match